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UNITED STATES NATIONAL MUSEUM
BULLETIN 192

THE OPERCULATE LAND MOLLUSKS OF THE FAMILY ANNULARIIDAE OF THE ISLAND OF HISPANIOLA AND THE BAHAMA ARCHIPELAGO

BY

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The scientific publications of the National Museum include two series, known, respectively, as *Proceedings* and *Bulletin.*

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The present work forms No. 192 of the Bulletin series.

Alexander Wetmore,
Secretary, Smithsonian Institution.

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THE OPERCULATE LAND MOLLUSKS OF THE FAMILY ANNULARIIDAE OF THE ISLAND OF HISPANIOLA AND THE BAHAMA ARCHIPELAGO

By Paul Bartsch

In 1920 John B. Henderson and I published "A Classification of the American Operculate Land Mollusks of the Family Annulariidae."[1] It was our intention to follow this by detailed monographs upon the group. The unfortunate early death of Mr. Henderson inhibited this endeavor.

The study was resumed by Dr. Carlos de la Torre and me in 1936. Our first paper, "The Cuban Operculate Land Shells of the Subfamily Chondropominae,"[2] was published in 1938. This was followed in 1941 by "The Cuban Operculate Land Mollusks of the Family Annulariidae, Exclusive of the Subfamily Chondropominae."[3] In 1942 we published "A Revision of the Classification of the Operculate Land Mollusks of Cuba belonging to the Family Annulariidae, and a List of the Known Species and Subspecies."[4] The present paper is a continuation of these studies and embraces an account of the members of this family known from Hispaniola and the Bahama Archipelago.

I wish here to express my thanks to Dr. Henry A. Pilsbry, of the Academy of Natural Sciences of Philadelphia, for the loan of material and also to William J. Clench, of the Museum of Comparative Zoology at Harvard College, for similar courtesies.

THE ANNULARIIDAE OF HISPANIOLA

In spite of the fact that Hispaniola, as Columbus termed the island now designated as Haiti and the Dominican Republic, has been known since that dauntless navigator discovered America, it is still the least explored of the Antilles when considered from a natural-history standpoint. The reasons for this will become readily apparent to anyone willing to delve even superficially into the interesting history of events that have haunted this enchanted isle almost from its very discovery.

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[1] Proc. U. S. Nat. Mus., vol. 58, pp. 49–82, 1920.

[2] Proc. U. S. Nat. Mus., vol. 85, pp. 193–403, figs. 71–101, pls. 7–39, 1938.

[3] Proc. U. S. Nat. Mus., vol. 89, pp. 131–385, pls. 9–57, 1941.

[4] Proc. Eighth Amer. Sci. Congress, vol. 3, Biol. Sci., pp. 335–379, 1942.

Hispaniola presents a very diversified geographic as well as geologic aspect, and its faunal substrate features have little in common with its political divisions. The Cul-de-Sac Plain with its subsea-level Lake Enriquillo practically divides Hispaniola into a northern and a southern division, which in the not distant past constituted separate islands. This region is semiarid, with a magnificent cactus and xerophytic flora. To the south of this a range of mountains extends from the western end to Barahona in the east with Mount La Selle, its highest culmination, attaining an altitude of 8,793 feet. This range, with its many spurs reaching the iron-bound coasts, has yielded molluscan material only from the edges of the slender passes that traverse it in several places. Its major portion promises rich returns to the venturesome collector.

The northern part of the island is traversed by another magnificent mountain chain, the Cibao Range, which extends from Cap à Foux, the northwestern point of the island, in a southeasterly direction to Cape Engaño, the eastern extremity of the island, with many spurs to the north and south. The beauty of this range is incomparable and must be seen to be worthily appreciated.

To the north and east of this is another range known as the Cordillera Septentrional, which, although it has been explored in a natural-history way, nevertheless continues to yield novelties to every ardent endeavor.

It is the high mountains everywhere that promise worth-while riches to the explorer. The lowland plains bordering the Artibonite and the Cul-de-Sac region are less promising, and this is probably also true of the lowland valleys of the Dominican Republic, while the forbidding iron-bound shores present even greater difficulty of approach to the explorer than the rugged interior.

The operculate fauna, while not so extensive or diversified as that of Cuba or Jamaica, with which it has affinities, is, nevertheless, a rich one. Here, as in those islands, we find certain widely distributed species occupying coastal plains or extensive lowland reaches, while others restricted to limestone outcrops of mountain regions are more confined in their distribution.

Shells from Hispaniola reached Europe at a comparatively early period after the white man's invasion. Some of the earliest were described without mention of collector or locality. Occupation of the island by France yielded that country quite a number of specimens with such faulty data.

H. Crosse, in the Journal de Conchyliologie for 1891, volume 39, pages 69 to 95, gives an interesting account of the contributions in the molluscan field made by various collectors up to that time in Hispaniola.

He mentions:

Théophile Laterrade, 1840
Auguste Sallé, 1847–51
Dr. Richaud, 1850
D. F. Weinland, 1857
Justus Hjalmarson, 1858
Guigou, 1858–9
Eugène Vesco, 1859
Heinrich Kissling, 1864–6
Smith, 1865
William M. Gabb, 1869–71
Dr. Wesley Newcomb, 1871
Mrs. Wm. Klatte, 1872
Mrs. Foderingham, 1873?
Prof. Linden, 1874?
V. W. Parkhurst, 1875
Dr. Brown, 1880
Hermann Rolle, 1887–8

To these must be added:

Alcide d'Orbigny, 1826
William L. Abbott, 1883, 1916–1923
W. M. Mann, 1912–1913
A. A. Olsson, 1916
Paul Bartsch, 1917, 1920, 1929
J. B. Henderson, 1917
Charles T. Simpson, 1917
Glover M. Allen, 1919
C. W. Cooke, 1919
E. C. Leonard, 1919, 1920, 1925, 1926
Mr. and Mrs. Gerrit S. Miller, Jr., 1925, 1928
Alexander Wetmore, 1927
Frederick C. Lincoln, 1927
W. J. Eyerdam, 1927
James Bond, 1927–1928
William M. Perrygo, 1927, 1928
Arthur Poole, 1927, 1928
Mr. and Mrs. E. C. Leonard, 1928, 1929
Herbert Krieger, 1928, 1929
R. M. Bond, 1928
C. R. Orcutt, 1929–1930
Thomas Barbour, 1929, 1934
Daniel C. Pease, 1932
P. J. Darlington, 1934
M. Bates, 1934
William J. Clench, 1937

Dr. Alexander Wetmore and Bradshaw H. Swales give an account of the part played by the Smithsonian Institution representatives in the natural-history exploration of Hispaniola in their volume, "The Birds of Haiti and the Dominican Republic."[5]

The present effort must therefore be considered in the nature of a progress report in which I have tried to bring together the results of past scattered endeavors in Hispaniolan malacology and combine them with the information furnished by the immense and splendid collection of mollusks in the United States National Museum.

Family ANNULARIIDAE Henderson and Bartsch

1920. Annulariidae Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, pp. 54–55.

This family includes all the New World "cyclostomoid" mollusks placed under the family names Cyclostomatidae, Ericiidae, and Pomatiasidae.

The chief distinguishing character separating this group from all other operculate pulmonates is found in the radula, which possesses a unicuspid rachidian tooth, a single unicuspid lateral tooth, and two marginals—the inner one resembling in form the lateral tooth, but multicuspid, and an outer one, which is long and curved like a bow and is pectinated both upon its recurved edge and upon its main portion but is not thereby separated by the pectinations into a group of individual teeth. In a very few exceptions a mere indication of an additional minute denticle is apparent on the rachidian and lateral tooth. There is no jaw. The sole of the foot is longitudinally divided by a sulcus into two muscular masses functioning independently from each other, thus giving to the animal a method of progression by alternate waves of muscular contraction, first on one side and then on the other. The foot is relatively short. A bifid muzzle of varying length is always present. The tentacles are long, slender, and fibrillar or slightly swollen at the ends. The eyes are placed at the base of the tentacles on the outer side and are often raised above the surface of the head by a fleshy protuberance.

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[5] U. S. Nat. Mus. Bull. 155, 483 pp., 26 pls., 1931.

The operculum shows a wide degree of variation through the various divisions of the family but follows, nevertheless, distinct lines of progression from a simple type to a very complicated structure, the steps from one extreme to the other being easily traceable. All the opercula possess a basal chondroid plate upon which calcareous ribs and lamellae are placed, the modifications of which are used in subdividing the family into a series of subfamilies and genera, as will be set forth below. Breathing devices, slits, punctures, and siphons may be present or absent.

The shell varies in shape from depressed-helicoid to elongate-conic. The sculpture varies from smooth to axially ribbed and spirally lirate, the intensity of these sculptural elements varying from obsolete to lamellose.

Type genus: *Annularia* Schumacher.

The family Annulariidae differs from the Pomatiasidae, an Old World group, in the radula. The Pomatiasidae possess multicuspid rachidian, lateral, and inner marginal teeth. The outer marginal is pectinated, but the pectinations are confined to the reflected portion of the tooth. In the Annulariidae, on the other hand, the rachidian and lateral teeth are unicuspid, with a few exceptions where a small lateral denticle is present, the inner marginal is multicuspid, and the outer marginal is pectinate, but the pectinations extend beyond the reflected portion, involving the main blade.

The geographic range of the Annulariidae extends from the Bahamas and lower Florida on the north, throughout the Greater and Lesser Antilles and on the mainland from Mexico, to Bolivia. By far the greatest development is centered in the Greater Antilles.

KEY TO THE SUBFAMILIES FOUND IN HISPANIOLA

Operculum without lamella or other reenforcements....... **Chondropominae**
Operculum with lamella or other reenforcements.
  Operculum with obliquely curved ribs.................. **Rhytidopominae**
  Operculum without obliquely curved ribs, with a single calcified lamella .... **Annulariinae**

Subfamily CHONDROPOMINAE Henderson and Bartsch

1920. Chondropominae Henderson and Bartsch, Proc. U. S. Nat. Mus., vol 58, p. 59.

Annulariid mollusks whose shell ranges in form from turbinate to elongate-conic. The axial sculpture may consist of strong ribs or range from these to slender, almost lamellar riblets, or it may be reduced to incremental lines. There is also a wide range of strength in the development of the spiral sculpture, which may be confined to the umbilicus or may cover the entire shell. Breathing devices are present in some groups and absent in others. The chief character of the subfamily, however, is found in the operculum, which consists of a thin, simple, chondroid basal plate of several whorls, the outer edge of which may be faintly upturned to form a very fragile, low, slender lamella, suggesting the starting point of the subfamily Adamsiellinae. This is, however, usually soon brushed away, leaving the operculum as a plain plate. The operculum has a deposit of fine calcareous granules, which may be very slight or fairly strong, depending upon the species in question.

Type genus: *Chondropoma* Pfeiffer.

Genus CHONDROPOMA Pfeiffer

1847. *Chondropoma* Pfeiffer, Zeitschr. Malak., vol. 6, p. 109.

Shell ranging in form from turbinate to elongate-conic; the sculpture in varying intensity may consist of axial ribs only or of axial ribs and finer axial threads or of axial ribs and spiral threads. All, even those without spiral sculpture on spire and base, have spiral threads on the umbilical wall. No special breathing device is developed in the members of this genus. The operculum is simple; that is, it consists of a chondroid plate made up of a varying number of whorls, the outer thin edges of which are sometimes faintly upturned to form a suggestion of an obsolete lamella. The outer surface of the operculum has a deposit of calcareous granules, which is usually very slight but in some species rather pronounced. In no instance is this entirely absent. The position of the opercular nucleus, whether excentric or subcentral, depends upon the shape of the aperture.

Type species: *Cyclostoma sagra* Orbigny = *Chondropoma (Chondropoma) pictum sagra* (Orbigny). Selected by Petit in 1850.

KEY TO THE HISPANIOLAN SUBGENERA OF THE GENUS CHONDROPOMA

- Axial and spiral sculpture obsolete.......................... **Wetmorepoma**
- Axial and spiral sculpture not obsolete.
  - Axial threads fused to form tufts at summit........... **Chondropomorus**
  - Axial threads not fused to form tufts at summit.
    - Spiral sculpture confined to umblical wall.......... **Chondropomium**
    - Spiral sculpture not confined to umblical wall.
      - Spiral sculpture present on umbilical wall and base. **Chondropomella**

Spiral sculpture present on entire shell.
  Axial ribs vertebrated.
    Axial ribs forming false but not fused tufts at summit .... Articulipoma
    Axial ribs not forming false tufts at summit .... Lindenipoma
  Axial ribs not vertebrated.................. Chondropoma

WETMOREPOMA, new subgenus

This subgenus is here proposed for *Chondropoma (Chondropomium) wetmorei* Bartsch.[6] In this the axial riblets are obsolete on the spire, becoming a little stronger on the base and umbilical wall; the spiral sculpture is obsolete everywhere except for a slender thread marking the outer limit of the umbilicus.

The subgenus so far is known only from Beata Island, Dominican Republic.

CHONDROPOMA (WETMOREPOMA) WETMOREI Bartsch

PLATE 1, FIGURE 3

1932. *Chondropoma (Chondropomium) wetmorei* BARTSCH, Proc. U. S. Nat. Mus., vol. 81, art. 6, p. 2, pl. 1, figs. 8, 10.

Shell small, elongate-conic, semitranslucent, flesh-colored, with four interrupted series of brown spots, which are arranged both in axial and spiral order. The spaces that separate these spots axially are about equal to the length of the spots, while the spaces that separate them spirally are more than twice the width of the spots. The early whorls are exceedingly thin, permitting the columella to be seen within. They are strongly rounded and marked by retractively slanting incremental lines only. The succeeding turns are also thin, but less so than the early whorls, and on these the incremental lines become strengthened; there are also obsolete spiral threads present, which give to the general surface a slightly malleated appearance. The suture is well constricted; the periphery of the last whorl is well rounded. The base is short and strongly rounded, narrowly umbilicated, and marked by the continuation of the axial lines, which here assume almost the strength of riblets and a spiral thread making the outer extremity of the umbilicus. Aperture oval; peristome simple and thin, not expanded.

The type (U.S.N.M. No. 403886) has 4 whorls remaining and measures: Height, 9.7 mm.; diameter, 4.3 mm.

The nuclear whorls were described from a young specimen having a little more than 5 whorls, of which the last shows the spotting described in the type, the preceding ones being bluish white. I have figured both specimens.

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[6] Proc. U. S. Nat. Mus., vol. 81, art. 6, p. 2, pl. 1, figs. 8, 10, 1932.

Subgenus CHONDROPOMORUS Henderson and Bartsch

1920. *Chondropomorus* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Shell elongate-conic, marked with both axial and spiral threads on spire and base; the axial threads are gathered into tufts at the summits of the whorls.

Type species: *Cyclostoma dentatum* Say = *Chondropoma (Chondropomorus) dentatum* (Say).

KEY TO THE HISPANIOLAN SPECIES OF THE SUBGENUS CHONDROPOMORUS

Shell broadly conic.
Peristome of inner lip expanded.............................. salleanum
Peristome of inner lip not expanded......................... litturatum
Shell elongate-conic.
Axial sculpture fine and feeble.
Shell elongate-ovate.. hemiotum
Shell subcylindric.. simplex
Axial sculpture not fine and feeble.
Peristome simple.
Whorls feebly rounded...................................... olssoni
Whorls well rounded.
Tufts at summit of whorls coarse and irregular.. moronense
Tufts at summit of whorls fine and regular......... pilsbryi
Peristome double.
Outer peristome broadly expanded.......................gnote
Outer peristome not broadly expanded.
Shell stout ....coroni
Shell slender.
Shell brightly colored ....petitianum
Shell dull ....caricae

CHONDROPOMA (CHONDROPOMORUS) SALLEANUM (Pfeiffer)

Shell rather large, ground color flesh-colored, with numerous dots, streaks, dashes, flammulations, or bands of brown, which are arranged in more or less axial and spiral series. There is a rather broad dark brown spiral band a little anterior to the periphery, and several of a weaker color on the umbilical wall. The peristome is marked by alternate zones of the ground color and spiral bands of brown. Nuclear whorls a little more than 2, forming a somewhat truncated apex, all but the last portion of the last smooth, the latter marked by faint axial threads. The postnuclear whorls are strongly rounded and marked by somewhat retractively slanting, slender ribs, which are frequently of double series, that is, a strong rib followed by several fainter threads. These ribs are gathered into tufts or toothlike denticles at the summit. The spiral sculpture consists of threads that render the axial riblets wavy and weakly nodulose. On the early whorls the nodules on the stronger riblets are almost spinose. Suture moderately constricted. Periphery well rounded.

The base is moderately long, somewhat inflated, well rounded, and marked like the spire. The umbilical wall is marked by a series of spiral cords that grow consecutively weaker from the outer inward. The last whorl is solute for about one-twentieth of a turn. Aperture auricular or pear-shaped. The peristome is simple. Operculum paucispiral with the nucleus halfway between subcentral and marginal; the outside is usually covered with a thin deposit of fine calcareous granules.

The species is known only from the Dominican Republic. The following key will help to recognize the known subspecies:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMORUS) SALLEANUM

Length more than 17 mm.	salleanum
Length less than 16 mm.	cookei

CHONDROPOMA (CHONDROPOMORUS) SALLEANUM SALLEANUM (Pfeiffer)

Plate 1, Figure 9

1850. *Cyclostoma salleanum* Pfeiffer, Zeitschr. Malak., vol. 7, p. 78.
1852. *Chondropoma salleanum* Pfeiffer, Conspectus cyclostomaceorum . . ., p. 44.
1854. *Cyclostoma salleanum* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pp. 274–275, pl. 37, figs. 13, 14.
1920. *Chondropoma (Chondropomorus) salleanum* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Pfeiffer's specimens were collected at Tablaso near Santo Domingo City. All our specimens are from this immediate region.

This subspecies is in every way much larger than *Chondropoma (Chondropomorus) salleanum cookei,* which it otherwise resembles.

The specimen figured is one of two entered as U.S.N.M. No. 493313. It has a little more than 7 whorls and measures: Length, 18 mm.; greater diameter, 10.7 mm.; lesser diameter, 8.1 mm. A summary of the measurements of the remaining specimens yields the following data:

	Number of whorls	Length	Greater diameter	Lesser diameter
		Mm.	*Mm.*	*Mm.*
Greatest	7.6	22.7	11.9	9.2
Least	4.+	15.5	9.0	7.4
Average	6.2	18.4	10.5	8.2

U.S.N.M. No. 151330 contains 1 specimen from the Sallé Collection labeled "Santo Domingo."

U.S.N.M. No. 493314 contains 1 specimen received from Fulton labeled "Haiti."

U.S.N.M. No. 493315 contains 3 specimens from the Ford Collection labeled "Santo Domingo."

U.S.N.M. No. 99634 contains 4 specimens from a bat cave at Santo Domingo collected by Dr. W. Newcomb.

U.S.N.M. No. 493316 contains 3 specimens from the Redfield Collection labeled "Santo Domingo."

U.S.N.M. No. 315154 contains 3 specimens from the Evezard Collection labeled "Santo Domingo."

U.S.N.M. No. 315163 contains 3 specimens from the same source.

U.S.N.M. No. 529444 contains 3 specimens from H. C. Fulton labeled "Haiti."

CHONDROPOMA (CHONDROPOMORUS) SALLEANUM COOKEI, new subspecies

Plate 1, Figure 8

The type (U.S.N.M. No. 491999) was collected by Dr. C. W. Cooke at U. S. Geological Survey station 8597 on a limestone hill south of Hatillo, 12 miles southwest of Cotui in the Province of La Vega, Dominican Republic. It has 6.9 whorls and measures: Length, 15.2 mm.; greater diameter, 8.6 mm.; lesser diameter, 6.9 mm. U.S.N.M. No. 472000 contains 4 topotypes from the same source.

Its much smaller size will at once distinguish this race from *Chondropoma (Chondropomorus) salleanum salleanum.*

CHONDROPOMA (CHONDROPOMORUS) LITTURATUM (Pfeiffer)

Plate 1, Figure 10

1850. *Cyclostoma litturatum* Pfeiffer, Zeitschr. Malak., vol. 7, p. 78
1852. *Chondropoma litturatum* Pfeiffer, Conspectus cyclostomaceorum . . ., p. 44.
1920. *Chondropoma (Chondropomorus) litturatum* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Shell broadly conic, with flesh-colored or faintly brownish ground color, the summit of the first nuclear whorl being dark reddish brown; the first postnuclear whorl with four interrupted spiral brown bands, the dots forming these bands having their long axis parallel with the spiral sculpture and being arranged in both axial and spiral series. On the next turn these bands break up into irregular-shaped elements, which on the succeeding turns form axial series of more or less zigzag, fulgurated, or flammulated markings. There is a zone of comma-shaped marks near the summit and a more or less conspicuous spiral band of small, rectangular, rather distantly spaced spots at the periphery; a little less conspicuous one paralleling this is a little posterior to the periphery, and a second band a little anterior to the periphery is made up of very large squarish spots. On the base there are two other bands, one continuous and marking the outer limit of the umbilicus, the other a little nearer this than the subperipheral large spots. The inside of the aperture shows these bands conspicuously and so does the outer lip of the peristome, while the inner lip is less conspicuously marked. Nuclear whorls a little more than 2, forming a truncated apex; all are rounded and smooth except the last portion of the last turn, which shows a few fine axial threads. The postnuclear whorls are strongly inflated, well rounded, and marked by rather closely crowded, low, rounded, slender riblets, which are separated by mere impressed lines. These riblets either terminate individually in a toothlike element at the summit or several of them become fused to form this structure. In addition to the axial sculpture, the whorls are marked by slender spiral threads of almost equal strength and spacing and separated by mere impressed lines. The junctions of the axial riblets and these spiral threads, which about equal the axial riblets in width, form small, low, squarish tubercles, which lend to the entire surface a somewhat clothlike texture. The suture is strongly constricted. Periphery of the last whorl well rounded. The base is short, well rounded, rather openly umbilicated, and marked by the continuation of the axial ribs and spiral threads, which equal those on the spire and form a sculpture like that on the spire. The umbilical wall is marked by eight slender spiral threads. The last whorl is solute for about one-tenth of a turn and conspicuously angulated at the posterior angle of the aperture. Aperture broadly oval, slightly angulated at the posterior angle; peristome simple, very slightly expanded and scarcely at all reflected. The operculum is paucispiral with almost subcentral nucleus, the outside covered with a thin deposit of fine calcareous granules, which are absent at the margin.

The specimen described and figured (U.S.N.M. No. 493317) is one of two collected by Sallé in the Dominican Republic. They are probably topotypes and came from Azua. It has 6.4 whorls and measures: Length, 14.2 mm.; greater diameter, 8.6 mm.; lesser diameter, 6.3 mm. The other specimen has a little more than 6 whorls and measures: Length, 14.6 mm.; greater diameter, 7.6 mm.; lesser diameter, 6.5 mm.

U.S.N.M. No. 493319 contains 2 specimens from the Redfield Collection labeled "Santo Domingo."

CHONDROPOMA (CHONDROPOMORUS) HEMIOTUM (Pfeiffer)

PLATE 1, FIGURE 1

1854. *Cyclostoma (Chondropoma) hemiotum* PFEIFFER, Proc. Zool. Soc. London, 1852, p. 143.

1854. *Cyclostoma hemiotum* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pp. 370–371, pl. 48, figs. 3, 4.

1920. *Chondropoma (Chondropomorus) hemiotum* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Shell elongate-ovate, thin, semitransluscent, horn yellow, with a broad faint pale brown subperipheral zone. Nuclear whorls decollated. The postnuclear whorls are moderately rounded and marked by weak, retractively slanting, axial riblets, which are rather closely spaced and are strengthened at the summit where usually several are gathered together to form feeble denticles. In addition to the axial sculpture, the whorls are marked by slender spiral threads, which are also weak, being about as strong as the axial riblets, which they render very weakly nodulose. The spaces enclosed between the axial ribs and the spiral threads are slight rectangular pits, having their long axis parallel with the axial sculpture. Suture moderately constricted. Periphery of the last whorl rounded. The base is moderately long, very openly umbilicated, strongly rounded, and marked by the continuation of the axial riblets and spiral threads equal to those on the spire except the four within the umbilicus, which are stronger. The last whorl is solute for about one-sixth of a turn. Aperture oval, posterior angle acute; peristome simple, slightly expanded and reflected, more so on the basal part of the outer and basal lip than on the rest. Operculum thin, corneous with subcentral nucleus, covered with a fine, thin granular deposit.

Pfeiffer's type was collected by Sallé at Yaque, Dominican Republic. The specimen that we have described and figured is one of 4 (U.S.N.M. No. 529443) without specific locality. It was obtained from Sowerby and Fulton. It has 4.5 whorls remaining and measures: Length, 14 mm.; greater diameter, 8.2 mm.; lesser diameter, 6 mm.

CHONDROPOMA (CHONDROPOMORUS) SIMPLEX (Pfeiffer)

PLATE 1, FIGURE 2

1854. *Cyclostoma (Chondropoma) simplex* PFEIFFER, Proc. Zool. Soc. London, 1852, p. 143.

1854. *Cyclostoma simplex* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pp. 368–369, pl. 47, figs. 23, 24.

1920. *Chondropoma (Chondropoma) simplex* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 62.

Shell small, elongate-conic, flesh-colored, with inconspicuous interrupted spiral bands of brown. The spots forming these bands have both an axial and a spiral arrangement. There is also a dark oblique streak on the first of the remaining turns marking the internal plug at the decollated end. The interior of the aperture is the same color as the outside, probably a little paler. Peristome a trifle paler. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are inflated, strongly rounded, narrowly shouldered at the summit, marked by very regular, slender, retractively slanting, axial threads, which are given a scalloped effect in passing over the rather broad low rounded spiral threads. The axial ribs are at irregular intervals gathered into weak tufts at the summit. This character is best expressed on the early turns, becoming enfeebled on the last. The junctions of the axial ribs and spiral threads form slender tubercles whose long axis coincides with that of the axial ribs. The suture is strongly constricted. Periphery of the last whorl inflated, well rounded. The base is moderately long, somewhat inflated, strongly rounded, narrowly umbilicated and marked by the continuations of the axial ribs and spiral cords, the latter growing successively a little weaker from the periphery toward the umbilicus. The umbilicus shows several spiral threads within. The last whorl is solute for about one-tenth of a turn. Aperture oblique, broadly oval. The peristome is double; the outer slightly expanded and slightly reflected, the inner a little less expanded and reflected; the outer extends but slightly beyond the inner. Operculum thin, paucispiral, with almost submarginal nucleus the outside covered with a very thin deposit of fine calcareous granules.

U.S.N.M. No. 151329 contains 3 specimens collected by Sallé in the Dominican Republic. They are probably topotypes. The one described and figured has a little more than 4 whorls remaining and measures: Length, 8.5 mm.; greater diameter, 4.7 mm.; lesser diameter, 3.8 mm.

U.S.N.M. No. 493312 contains 3 specimens received from H. C. Fulton labeled "Haiti."

U.S.N.M. No. 315178 contains 3 specimens from the Evezard Collection.

CHONDROPOMA (CHONDROPOMORUS) OLSSONI Pilsbry

Plate 1, Figure 4

1933. *Chondropoma olssoni* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 125, pl. 6, figs. 1–4.

Complete shell elongate-turrited; when truncated, very elongate-ovate, almost subcylindric, of buff or pale brown ground color, variously banded with dark brown. In the type there are four bands of somewhat varying width between the summit and the periphery and one below the periphery. In other individuals the subperipheral only is indicated, while others vary between these two extremes. Nuclear whorls 2, small, inflated, well rounded, smooth. The postnuclear whorls are moderately inflated, crossed by low, rounded, retractively curved axial riblets, which are separated by mere impressed lines; two, three, or four of these riblets become fused into tufts at the summit of the turns where they form strong, almost white denticles. These denticles are also rather variable in width and spacing. In the type they are rather broad. The spiral sculpture also consists of threads, which equal the axial riblets in strength but are a little more widely spaced. The junctions of the axial riblets and spiral threads do not produce pronounced tubercles, while the spaces between them suggest thimble-pitting. The suture is well constricted, rendered wavy by the denticles; periphery somewhat inflated, well rounded. The base is moderately long, inflated, well rounded, openly umbilicated, and marked by the same type of sculpture as the spire. The last whorl is solute for one-fourth of a turn with a conspicuous carina at posterior angle. Aperture broadly oval; peristome simple. Operculum thin, corneous, paucispiral, with submarginal nucleus.

The type (Acad. Nat. Sci. Phila. No. 160978) has almost 4 whorls remaining and measures: Length, 14.3 mm.; greater diameter, 7 mm.; lesser diameter, 5.9 mm. It was collected by A. A. Olsson on Cerro Monte Cristi, Dominican Republic.

U.S.N.M. No. 426046 contains 8 topotypes received from the Academy of Natural Sciences of Philadelphia.

CHONDROPOMA (CHONDROPOMORUS) MORONENSE, new species

PLATE 1, FIGURE 5

Shell moderately large, elongate-conic, appearing elongate-ovate when truncated, of pinkish flesh-colored ground color, marked by seven interrupted spiral bands of brown between the summit and the suture. The spots composing these bands are arranged also in axial series. Base with a broad subperipheral brown band, which is almost continuous, and six slender interrupted bands anterior to this. The aperture is yellowish flesh-colored inside, showing the subperipheral dark band strongly and the rest faintly. The early whorls are decollated, those remaining moderately rounded; their sides not quite evenly curved, the curvature being less strong near the summit, below which it increases slightly. The whorls are marked by retractively slanting axial riblets, which are rather distantly spaced and are gathered together into tufts at the summit at more or less regular intervals, the spaces between them being narrower than the tufts, which sometimes are rather broad. In addition to the axial sculpture, the whorls are marked by sculpture not fine and feeble which renders the axial riblets somewhat sinuous or fluted when viewed squarely. The suture is moderately constricted. Periphery obscurely angulated. The base is short, narrowly umbilicated, well rounded, and marked by the continuation of the axial ribs. The subobsolete markings of the spire seem to be absent here, but there are four rather strong spiral cords in the umbilicus and one outside. The last whorl is slightly solute. Aperture broadly oval, sometimes angulated at the posterior angle; peristome simple, slightly expanded and reflected, adnate on the middle of the parietal wall. The operculum is unknown.

The type (U.S.N.M. No. 472001) was collected by Dr. W. L. Abbott at Moron, which he states is at the headwaters of the river that flows into the sea at Jérémie on the north coast of the southern peninsula of Haiti. The type has a little more than 5 whorls remaining and measures: Length, 15.6 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.8 mm.

CHONDROPOMA (CHONDROPOMORUS) PILSBRYI, new species

Truncated shell varying from elongate-ovate to subcylindric. The postnuclear whorls are of either flesh-colored or pale brown ground color, with the base paler than the rest, and marked with flammulations and fulgurations arranged both in spiral and axial series; the points of the fulgurations are backwardly directed. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are rather high between summit and suture, well rounded, and marked by retractively curved axial riblets, which are low, rounded, and separated by spaces narrower than the riblets. At the summit these riblets are gathered into rather prominent tufts, which form conspicuous white denticles. The spiral sculpture consists of threads, which are also rounded but not quite so strong as the axial riblets or quite so closely spaced as these.

The spaces enclosed between the axial riblets and spiral threads may be fine pits or slightly quadrangular impressions. Both the axial and spiral sculptures are well rounded, and their junction does not produce marked tuberculation. The suture is impressed and rendered crenulated by the denticles at the summit of the whorls. Periphery somewhat inflated, well rounded. The base is moderately long, inflated, well rounded, very broadly openly umbilicated, and marked like the spire but with the sculpture a little less strong than that of the spire. On its outer half the umbilical wall shows a number of spiral threads which are a little stronger than those on the base. The last whorl is solute for one-fifth of a turn. On the solute portion there is a decided carina following the posterior angle of the aperture. The aperture is broadly oval; peristome simple.

I have seen this species from Monte Cristi and Santiago Provinces, Dominican Republic.

I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMORUS) PILSBRYI

Truncated shell subcylindric	pilsbryi
Truncated shell elongate-ovate	nonuni

CHONDROPOMA (CHONDROPOMORUS) PILSBRYI PILSBRYI, new subspecies

PLATE 1, FIGURE 6

This race Dr. W. L. Abbott found abundantly at Guayubin Río Yaque del Norte, Monte Cristi Province, Dominican Republic.

This is distinguished from *Chondropoma (Chondropomorus) pilsbryi nonuni* by having the spire elongate-ovate and the whorls a little more inflated and much more finely denticulated at the summit. It is also of darker coloration.

The type (U.S.N.M. No. 515241) has 4.5 whorls remaining and measures: Length, 16.2 mm.; greater diameter, 8.5 mm.; lesser diameter, 7.0 mm.

U.S.N.M. No. 515242 contains 70 topotypes from the same source.

CHONDROPOMA (CHONDROPOMORUS) PILSBRYI NONUNI, new subspecies

PLATE 1, FIGURE 7

This subspecies was collected by Dr. W. L. Abbott above the Navarrete Station on the railway between Puerto Plata and Santiago, Santiago Province, Dominican Republic. It is distinguished from *Chondropoma (Chondropomorus) pilsbryi pilsbryi* in being more cylindric in shape, of paler coloration, and in having the denticles at the summit much more pronounced.

The type (U.S.N.M. No. 515243) has 4.5 whorls remaining and measures: Height, 15.7 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.3 mm.

U.S.N.M. No. 515244 contains 12 topotypes from the same source.

CHONDROPOMA (CHONDROPOMORUS) GNOTE Pilsbry

Shell elongate-conic, color varying from flesh-colored to pale yellow in ground color and marked by interrupted spiral bands of brown, the elements of which vary very much in width and spacing. They are arranged in axial as well as spiral series. In some of the races, however, this arrangement is not definite, and in some they become fused in places, both axially and spirally, to form blotches of an irregular pattern. These color markings are also present on the base. The peristome is either white or pale yellow, and the outer lip is rayed corresponding to the banding of the last whorl. The upper portion of the nuclear whorls is bright red, which marks them very conspicuously when viewed from the tip end. Nuclear whorls a little more than 2, forming a moderately slender apex, with the whorls inflated, strongly rounded, and smooth. The postnuclear whorls are inflated, strongly rounded, and marked by weak, low, rounded, slightly retractively slanting, crowded axial riblets of which several are gathered into tufts at the summit, giving the summit a somewhat notched appearance. This character varies considerably in strength in the various races, as does the axial sculpture itself. The spiral sculpture consists of cords about as wide as the axial riblets. The summit of the whorls is appressed. The lack of elevation of the axial ribs and spiral ribs gives to the surface a somewhat polished effect. Suture moderately constricted. Periphery inflated with a faint indication of angulation. The base is short, inflated, moderately openly umbilicated, well rounded, and marked by the continuation of the axial ribs, which become narrower than those on the spire as they approach and extend into the umbilicus, and spiral threads, which are about as strong as those on the spire, except the last one or two near or at the edge of the umbilicus, which are usually stronger. The aperture is broadly ovate; peristome double, the outer narrow on the inner lip and broadly flaringly expanded on the basal and outer lip, forming a rather conspicuous auricle at the posterior angle, the inner peristome exserted, reflected, and partly adnate to the outer. Operculum thin, corneous, paucispiral.

The collection before me indicates that this species extends over the northern and central range of mountains. Our material enables me to recognize a number of races, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMORUS) GNOTE

Shell stout.
  Spots composing interrupted spiral bands small and distantly spaced .... enneryense
  Spots composing interrupted spiral bands not small or distantly spaced .... tuobi
Shell not stout.
  Spots composing interrupted spiral bands small and distantly spaced .... kriegeri
  Spots composing interrupted spiral bands not small or distantly spaced .... gnote

CHONDROPOMA (CHONDROPOMORUS) GNOTE ENNERYENSE, new subspecies

PLATE 2, FIGURE 7

This race was collected by E. C. Leonard on the summit of the mountains near Ennery, Haiti. It, like *Chondropoma (Chondropomorus) gnote tuobi,* has exceedingly strongly developed tufts at the summit, even more so than that race, but here the interrupted spiral bands are slender and narrow and more numerous, and the whole color scheme is paler.

The type (U.S.N.M. No. 471994) has 5.9 whorls remaining and measures: Length, 14 mm.; greater diameter, 7.3 mm.; lesser diameter, 6.1 mm.

CHONDROPOMA (CHONDROPOMORUS) GNOTE TUOBI, new subspecies

PLATE 2, FIGURE 5

This race comes from the region of Sans Souci, Haiti. It has previously been confused with *Chondropoma (Chondropomorus) petitianum,* certain races of which occupy the same region, but from which its smooth surface will at once distinguish it.

It is differentiated from the other subspecies of this group by its broadly conic outline and by its having the tufting at the summit strongly developed, in which respect it resembles *Chondropoma (Chondropomorus) gnote enneryense,* but it is readily distinguished from this by having the brown spots of the interrupted spiral bands very broad and very strongly developed, usually developing into blotches instead of mere lines as in *enneryense.*

The type (U.S.N.M. No. 471991) comes from Sans Souci, Haiti. It has 5.5 whorls remaining and measures: Length, 15.3 mm.; greater diameter, 8.7 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 471942 contains 6 topotypes from the same source.

U.S.N.M. No. 403811 contains 24 specimens collected by Orcutt on limestone rocks 39.8 miles south of Cap Haïtien.

CHONDROPOMA (CHONDROPOMORUS) GNOTE KRIEGERI, new subspecies

PLATE 2, FIGURE 8

This subspecies was collected by H. W. Krieger during his archeological explorations in Hispaniola at the village site of the Irawak Indians at the mouth of the San Juan River, which is on the north side of the Samaná Peninsula in the Dominican Republic.

It is a pale race beautifully regularly spotted by interrupted spiral bands of brown, which are few in number and distantly spaced axially. The spots here all tend far more toward an axial arrangement than in *Chondropoma (Chondropomorus) gnote gnote.* Here, too, the tufting at the summit is much more pronounced.

The type (U.S.N.M. No. 471997) has 5.5 whorls remaining and measures: Length, 13.5 mm.; greater diameter, 7 mm.; lesser diameter, 5.3 mm.

U.S.N.M. No. 425527 contains 5 topotypes from the same source.

CHONDROPOMA (CHONDROPOMORUS) GNOTE GNOTE Pilsbry

Plate 2, Figure 9

1933. *Chondropoma soror* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 124, pl. 6, fig. 15; not *Chondropoma soror* Pilsbry, 1930.
1935. *Chondropoma gnote* Pilsbry, Nautilus, vol. 48, p. 144.

We have this race from various localities on the southwest side of Samaná Bay, centering about San Lorenzo Bay in the Dominican Republic. It is of slender outline, with the tufts at the summit decidedly reduced, and has the interrupted spiral bands of brown irregularly developed, not forming a very definite axial pattern. The whole brown spotting is dense and gives the shell a rather dark aspect. Here both the axial and the spiral threads are decidedly reduced on the last whorl, that is, they are only feebly expressed.

In slenderness it resembles *Chondropoma (Chondropomorus) gnote kriegeri,* from which the extreme reduction of the tufts at the summit and its much darker coloration will differentiate it.

The specimen figured is one of 22 specimens (U.S.N.M. No. 426037). It was collected by Dr. W. L. Abbott a quarter of a mile from San Lorenzo Bay. It has 5.5 whorls remaining and measures: Length, 14.3 mm.; greater diameter, 7.6 mm.; lesser diameter, 5.7 mm.

U.S.N.M. No. 369104 contains 58 specimens collected by Gerrit S. Miller, Jr., at Boca del Infierno, Samaná Bay, Dominican Republic.

U.S.N.M. No. 369148 contains 15 specimens collected by Mr. Miller on the Upper Orange Keys, Samaná Bay.

U.S.N.M. No. 369137 contains 3 specimens collected by Mr. Miller on Lower Orange Key, Samaná Bay.

CHONDROPOMA (CHONDROPOMORUS) CORONI, new species

Plate 3, Figure 7

Shell rather large, flesh-colored, with various spots, dots, and dashes of brown, of which a series of oblique spots near the summit are stronger than the rest. The rest are more or less disposed in spiral series, which are present on both spire and base. The peristome shows these spiral bands as blotches of brown at the edge. The nuclear whorls are decollated. The whorls remaining are inflated, strongly rounded, and marked by rather strong, retractively slanting axial riblets, which become somewhat strengthened at the summit, and not infrequently several of them are gathered together to form low, rather broad tufts. In addition to the axial sculpture, the whorls are marked by spiral threads, which are about as strong as the axial ribs and render these slightly nodulose at their junction. The spaces enclosed between the spiral threads and axial ribs are squarish pits. The suture is well constricted. Periphery feebly angulated. The base is short, broadly, openly umbilicated, well rounded, and marked by the continuation of the axial riblets and spiral threads equal to those on the spire. There are five spiral threads on the outer half of the parietal wall of the open umbilicus. The last whorl is slightly solute. Aperture broadly oval; peristome simple, but with an indication of doubling at the posterior angle. This probably is occasioned by a tuft. The inner lip, too, has a slight indication of doubling.

The type (U.S.N.M. No. 493320) was collected by John B. Henderson at San Marc, Haiti. It has 4.5 whorls and measures: Length, 15 mm.; greater diameter, 8.9 mm.; lesser diameter, 7 mm.

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM (Pfeiffer)

Shell elongate-conic, of flesh or pale brown ground color, variously mottled, streaked, spotted, or interruptedly spirally banded with brown; the inside of the aperture varies from flesh color through horn color, through pale brown, showing brown rays on the outer lip of both peristomes. The posterior fourth of the first nuclear whorl is very dark chestnut-brown, the rest horn-colored. Nuclear whorls 2 or a little more, strongly rounded, forming a truncated apex, the last portion of the last nuclear turn being marked by fine lines of growth. The postnuclear whorls are well rounded and marked by slender axial ribs, which may be closely or rather distantly spaced, depending upon the subspecies in question; but no matter which, some of them are always gathered into rather distantly spaced tufts at the summit. In addition to the axial sculpture, the whorls are marked by spiral threads, which may be as strong as the axial riblets or a little weaker. Their junction with the axial ribs usually produces fine nodules, while the spaces enclosed between them vary in the various subspecies from rectangular to squarish pits. The suture is moderately constricted. Periphery obsoletely angulated. The base is moderately long, narrowly openly umbilicated, well rounded, and marked by the continuation of the axial ribs and spiral threads, the latter about as strong as those on the spire; those near the umbilicus, however, are usually a little heavier. Aperture very broadly oval; peristome double, the outer moderately expanded on the outer and basal lips, the inner projecting slightly above the outer and only moderately expanded. Operculum paucispiral with the nucleus halfway between subcentral and marginal.

The material before me shows that this species is distributed over northern and central Haiti and the Dominican Republic. The following key will help to distinguish the subspecies composing it:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMORUS) PETITIANUM

Axial ribs distantly spaced .... **costatum**
Axial ribs not distantly spaced.
  Intercostal spaces wider than axial ribs.
    Umbilicus rather broad .... **dominicum**
    Umbilicus narrow.
      Axial ribs on last whorl about 80 .... **dessalinesi**
      Axial ribs on last whorl about 110 .... **hispaniolae**
  Intercostal spaces not wider than axial ribs .... **petitianum**

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM COSTATUM Weinland

Plate 2, Figure 4

1880. *Chondropoma petitianum costata* Weinland, Jahrb. deutschen malak. Ges., vol. 7, p. 346.

1933. *Chondropoma trachyderma* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 123, pl. 6, fig. 10.

This subspecies comes from the Samaná Bay region, Dominican Republic. It is easily distinguished from the other members of the group by its distantly spaced axial riblets.

The specimen figured (U.S.N.M. No. 471986) is one of 20 collected by Gerrit S. Miller, Jr., at San Gabriel on the south shore of Samaná Bay. It has 5.5 whorls remaining and measures: Length, 13.5 mm.; greater diameter, 7 mm.; lesser diameter, 5.8 mm.

U.S.N.M. No. 426038 contains 1 specimen collected by William M. Gabb at Santo Domingo.

U.S.N.M. No. 471987 contains 27 specimens collected by W. L. Abbott on San Gabriel Islet, Samaná Bay.

U.S.N.M. No. 471988 contains 9 specimens collected by W. L. Abbott 12 miles northwest of Sánchez, Samaná Bay.

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM DOMINICUM, new subspecies

Plate 2, Figure 6

This race, which comes from the region of Puerto Plata, Dominican Republic, and the coast line east to Sosúa, is distinguished from the other members of the closely spaced, axially ribbed forms by having the umbilicus comparatively broad.

The type (U.S.N.M. No. 493309) comes from Puerto Plata and was received from the H. Prime Collection. It has 4.8 whorls remaining and measures: Length, 12 mm.; greater diameter, 6.7 mm.; lesser diameter, 5.1 mm.

U.S.N.M. No. 493310 contains 13 topotypes from the same source.

U.S.N.M. No. 493311 contains 4 specimens from the type locality from the Sanderson Smith Collection.

U.S.N.M. No. 336763 contains 19 specimens collected by W. L. Abbott among coral debris 1 to 2 miles from the sea at 50 to 150 feet altitude in grassland and secondary jungle, at Sosúa, 16 miles east of Puerto Plata.

U.S.N.M. No. 529442 contains 3 specimens labeled "Haiti."

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM DESSALINESI, new subspecies

Plate 2, Figure 3

This subspecies Henderson and Bartsch collected on the hills at Thomazeau in the Cul-de-Sac.

It closely resembles the northern race in size, shape, and coloration but has fewer and stronger ribs. On the last whorl of this race 80 axial ribs are present, while in *Chondropoma (Chondropomorus) petitianum hispaniolae* I count 110 on the same turn.

The type (U.S.N.M. No. 471984) has 5.5 whorls remaining and measures: Length, 14 mm.; greater diameter, 6.7 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 471985 contains 33 topotypes from the same source.

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM HISPANIOLAE Clench and Aguayo

PLATE 2, FIGURE 1

1937. *Chondropoma (Chondropomorus) hispaniolae* CLENCH and AGUAYO, Mem. Soc. Cubana Hist. Nat., vol. 11, No. 2, pp. 64–65, pl. 7, figs. 1, 2.

This race comes from the region of Sans Souci and La Ferriere, Haiti. The type locality is Milot.

It has the umbilicus very narrow and the axial ribs closely crowded, and it differs from the very closely related *Chondropoma (Chondropomorus) petitianum dessalinesi* in having a much larger number of axial ribs. For example, the specimen figured has 110 on the last whorl, while *dessalinesi* has only 80 on the same turn; otherwise they resemble each other in every feature.

The figured specimen (U.S.N.M. No. 471981) was collected by John B. Henderson at Sans Souci. It has almost 6 whorls remaining and measures: Length, 14.9 mm.; greater diameter, 7.3 mm.; lesser diameter, 5.5 mm.

U.S.N.M. No. 471982 contains 393 specimens from the same source.

U.S.N.M. No. 162929 contains 51 specimens collected by Henderson and Simpson.

U.S.N.M. No. 162930 contains 7 specimens collected by Henderson and Simpson at La Ferriere.

CHONDROPOMA (CHONDROPOMORUS) PETITIANUM PETITIANUM (Pfeiffer)

PLATE 2, FIGURE 2

1850. *Cyclostoma petitianum* PFEIFFER, Zeitschr. Malak., vol. 7, pp. 78–79.

1854. *Cyclostoma petitianum* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pp. 277–278, pl. 37, figs. 23–24.

This race was collected by Sallé in the Dominican Republic, the exact locality being still in doubt. Our figure is from the type in the British Museum. It differs from the other subspecies in having the intercostal spaces no wider than the axial ribs.

The type has 5 whorls remaining and measures: Length, 13.2 mm.; greater diameter, 6.4 mm.

CHONDROPOMA (CHONDROPOMORUS) CARICAE Pfeiffer

Shell elongate-conic, flesh-colored with spiral series of faint oblique brown spots on the spire and narrow interrupted spiral bands of brown on the base. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are well rounded and marked by rather strong, somewhat sinuous, retractively slanting axial riblets, which are gathered into short tufts at the summit. In addition to the axial riblets, the whorls are marked by spiral threads, which are of somewhat variable strength and which render the axial riblets weakly nodulose. The spaces enclosed between the axial riblets and spiral threads are rectangular pits having their long axis parallel with the axial sculpture. Suture moderately constricted. The base is well rounded, openly umbilicated, and marked by the continuation of the axial riblets and spiral threads, the latter becoming stronger from the periphery toward the umbilicus, where they are rather distantly spaced, the one marking the outer limit of the umbilicus being much stronger than the rest. The umbilical wall varies in the expression of its spiral sculpture in the different subspecies. The last whorl may be adnate to the preceding whorl or solute. Aperture broadly oval; peristome double, the outer moderately expanded and reflected, considerably more so on the outer lip than on the inner, slightly sinuous at the edge of the basal and outer lip; inner peristome strongly projecting above the outer and slightly reflected at the outer and basal lip.

Of this species Hjalmarson says: "Under fallen leaves on the roots of *Carica papaya*, usually in pairs."

This species we have seen from a number of stations on the south side of the Cordillera Septentrional, Dominican Republic. I am recognizing three subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMORUS) CARICAE

Last whorl decidedly solute	sosuense
Last whorl not solute.	
Axial ribs closely crowded	navarretense
Axial ribs not closely crowded	caricae

CHONDROPOMA (CHONDROPOMORUS) CARICAE SOSUENSE, new subspecies

Plate 3, Figure 4

This race was collected by Dr. W. L. Abbott at Sosúa, 17 miles east of Puerto Plata, Dominican Republic. In this form the last whorl is decidedly solute for about one-fifth of a turn, and the axial ribs are very closely spaced and strongly developed at the summit. The spiral threads, too, are numerous, equaling the axial riblets in strength. The umbilical wall also has strongly pronounced spiral threads, which seem to be absent in the other two subspecies. The inner peristome is very strongly exserted, much more so than in the other races.

The type (U.S.N.M. No. 336770) has 5.3 whorls remaining and measures: Length, 13.3 mm.; greater diameter, 6.2 mm.; lesser diameter, 4.8 mm.

CHONDROPOMA (CHONDROPOMORUS) CARICAE CARICAE Pfeiffer

Plate 3, Figure 2

1858. *Chondropoma caricae* Pfeiffer, Malakozool. Blätter, vol. 5, p. 142.
1920. *Chondropoma (Chondropomorus) caricae* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 61.

This, the typical subspecies, comes from Santiago, Dominican Republic.

The shell is marked by numerous feebly expressed, small, brown spots. The ribs are comparatively distantly spaced, forming strong tufts at the summit, and the last whorl is adnate to the preceding turn.

The specimen figured (U.S.N.M. No. 193590) has 5 whorls remaining and measures: Length, 11.2 mm.; greater diameter, 5.9 mm.; lesser diameter, 4.5 mm.

The rather distant ribbing will differentiate it from *Chondropoma (Chondropomorus) caricae navarretense.*

CHONDROPOMA (CHONDROPOMORUS) CARICAE NAVARRETENSE, new subspecies

Plate 3, Figure 5

This race was collected by Dr. W. L. Abbott above Navarrete Station on the railroad running from Puerto Plata to Santiago, Dominican Republic.

In this race we have the axial ribs very closely spaced, in which respect it resembles *Chondropoma (Chondropomorus) caricae sosuense,* from which it is at once distinguished by its much more feeble tufts and by having the last whorl adnate to the preceding turn.

The type (U.S.N.M. No. 471990) has 5 whorls remaining and measures: Length, 12.2 mm.; greater diameter, 6.3 mm.; lesser diameter, 4.8 mm.

Subgenus CHONDROPOMIUM Henderson and Bartsch

1920. *Chondropomium* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 60.

Shell varying in shape from ovate to elongate-conic, marked by axial ribs on spire and base. Spiral sculpture absent except on the umbilical wall, where spiral cords are present. Operculum typically chondropomoid.

Type species: *Chondropoma weinlandi* Pfeiffer = *Chondropoma (Chondropomium) swiftii weinlandi* Pfeiffer.

KEY TO THE HISPANIOLAN SPECIES OF THE SUBGENUS CHONDROPOMIUM

Peristome single.
    Outer lip strongly expanded and thickened .... **superbum**
    Outer lip not strongly expanded or thickened.
        Shell elongate-ovate .... **swiftii**
        Shell elongate-conic .... **vermiculatum**

Peristome double.
  Outer peristome broadly expanded.
    Expansion of peristome of same width all around.......... ignotum
    Expansion of peristome not of same width all around;
      outer peristome of inner lip narrower than the rest.
        Shell large, diameter more than 16 mm........... asymmetricum
        Shell smaller, diameter less than 13 mm.......... inaequilabrum
  Outer peristome not broadly expanded.
    Outer peristome auriculated at posterior angle............ beatense
    Outer peristome not auriculated at posterior angle.
      Surface with a watered-silk color effect.............. gimbiense
      Surface without a watered-silk color effect............ eusarcum

CHONDROPOMA (CHONDROPOMIUM) SUPERBUM Henderson and Simpson

Plate 5, Figure 1

1902. *Chondropoma superba* Henderson and Simpson, Nautilus, vol. 16, pp. 88–89. fig.
1920. *Chondropoma (Chondropomium) weinlandi superba* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 60.

Shell large, elongate-conic, flesh-colored, with interrupted spiral bands of brown of somewhat varying strength. These brown markings are of varying length but terminate on the same axial rib, which gives them an axial as well as a spiral arrangement. Nuclear whorls 2, well rounded, forming an almost truncated apex; smooth, except the last half of the last turn, which shows slight indications of axial threads. Postnuclear whorls moderately rounded, slightly contracted a little below the summit, which is narrowly shouldered. The whorls are marked by slightly retractively curved axial ribs of which 140 occur upon the last turn, not counting the fine threads immediately behind the lip. These ribs extend strongly upon the summit where they become slightly strengthened, rendering the shoulder crenulated. Suture channeled. Periphery well rounded. Base narrowly, openly umbilicated, marked by the continuations of the axial ribs, which bend into the umbilicus; the umbilicus wall is marked by 11 spiral threads of somewhat varying strength and spacing. The last whorl is solute for about one-fifth of the turn, its summit forming a strong crenulated carina, while the outside of the parietal wall is marked by the feeble continuations of the axial ribs, which here appear as mere lines of growth. Aperture oval; peristome strongly expanded, reflected and thickened on the outer and basal lips, the inner lip being but slightly expanded and reflected. Operculum paucispiral with excentric nucleus, the last whorl covered with a fine granular calcareous deposit which is thickest on the columellar border.

The type, U.S.N.M. No. 168798, was collected by Henderson and Simpson near Thomazeau, Haiti. It is a complete specimen, having 7.8 whorls, and measures: Length, 27.6 mm.; greater diameter, 13.9 mm.; lesser diameter, 10.9 mm.

U.S.N.M. No. 503985 contains 373 topotypes from the same source.

U.S.N.M. No. 503983 contains 74 specimens collected by Henderson and Simpson at Trou Caïman, Thomazeau.

U.S.N.M. No. 354972 contains 19 specimens collected by Henderson and Bartsch 4 miles north of Trou Caïman, Thomazeau.

U.S.N.M. No. 503789 contains 51 specimens from Glore, Thomazeau.

U.S.N.M. No. 503992 contains 6 specimens collected by Henderson and Simpson on the shore of Lake Assua, Haiti.

U.S.N.M. No. 379962 contains 87 specimens collected by Eyerdam at Morne à Cabrits.

U.S.N.M. No. 503991 contains 38 specimens collected by Henderson and Simpson at Morne à Cabrits.

U.S.N.M. No. 402843 contains 71 specimens collected by Orcutt at Morne à Cabrits.

U.S.N.M. No. 392862 contains 3 specimens collected by Bartsch at Morne à Cabrits.

This superb species was found abundantly on the mountain east of Thomazeau both by Henderson and Simpson and by Henderson and the author.

It occupies higher ground than *Chondropoma (Chondropomium) swiftii weinlandi* from which its much greater size and thickened outer and basal peristome readily distinguish it.

CHONDROPOMA (CHONDROPOMIUM) SWIFTII (Shuttleworth)

This species has enjoyed various vicissitudes. It was first brought to the attention of mollusk students by Pfeiffer in 1854,[7] under the name *Cyclostoma (Chondropoma) semilabre* Lamarck, which was a misidentification. From this time until 1862 it was listed under that name by various authors who followed Pfeiffer in his erroneous concept.

In 1854 Shuttleworth[8] described it under the name *Cyclostoma (Chondropoma) swiftii.* He stated that he had received it from Bland, who said that a few specimens had been collected near Ponce, Puerto Rico, by Swift.

An enlarged photograph of Shuttleworth's type, which is in the Naturhistorisches Museum at Bern, Switzerland, leaves not the slightest doubt about this being the Hispaniolan species. In those days commerce between Ponce and the Dominican Republic was even greater than today, and the locality mix-up is easily accounted for.

My own collecting and that of my students about Ponce and that of every one else have failed to rediscover this on the south coast of Puerto Rico. The species must therefore bear the name *Chondropoma swiftii* in the future. This is to be regretted, since in 1862 Pfeiffer, yielding to the criticism of fellow-workers, bestowed upon the shells collected by Augustus Sallé in Haiti the name *Chondropoma weinlandi,*[9] used as type designation for the subgenus *Chondropomium* by Henderson and Bartsch.[10] The type of the subgenus *Chondropomium* will therefore have to be *Chondropoma (Chondropomium) swiftii weinlandi* Pfeiffer.

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[7] Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, p. 271, pl. 37, figs. 1, 2; pl. 49, figs. 17–20.

[8] Berner Mitth., 1854, pp. 91–92.

This by no means ends the difficulties that surround this species. *Chondropoma (Chondropomium) swiftii* as now known extends through the lowlands of the Cul-de-Sac region of Hispaniola bordering Lakes Saumâtre (Assuei) and Enriquillo and the regions east of these to Azua. In this range it breaks up into a number of distinct races, which I am here designating subspecies.

Pfeiffer's figures, and specimens in the collection of the U. S. National Museum, also collected by Sallé, which so closely resemble Pfeiffer's figures that they might have served as subjects for them, show plainly that they represent distinct races. Unfortunately our specimens also bear only "Haiti" as locality designation. Sallé or the recipient of Sallé's collections evidently lumped kindred things together without keeping specific locality records for them.

H. Crosse, in his "Faune Malacologique Terrestre et Fluviatile de l'Île de Saint-Domingue,"[11] pages 75–80, traces the peregrinations of Augustus Sallé in Hispaniola, which extended over the years 1847-51. From this we know that Sallé did some collecting on the north shore of Lake Enriquillo. A large series of specimens gathered by Henderson and Bartsch on the north shore of Lake Saumâtre a little west of Sallé's collecting agree sufficiently well with Pfeiffer's first figures, plate 37, figures 1 and 2, and with specimens collected by Sallé in our collection, to make me feel secure in believing this region to represent the home of specimens figured on Pfeiffer's plate 37 as 1 and 2. I therefore now restrict the subspecific name *Chondropoma (Chondropomium) swiftii weinlandi* to this race.

Pfeiffer, on plate 49, figure 17, figures a shell that in every way agrees with the photograph of Shuttleworth's *Cyclostoma swiftii* and with specimens in our collection from the Sallé collection. Our plate 4, figure 2, is a copy of a photograph of Shuttleworth's type, while figure 1 represents a specimen from the Sallé collection. These, therefore, depict the typical race.

The species may be defined as follows:

Shell elongate-ovate, ground color flesh-colored, marked with narrow bands of interrupted spiral lines of brown, the early whorls frequently with a deep brown zone near the suture; not infrequently the entire shell is either plain flesh-colored or pale brown. Nuclear whorls almost always decollated; postnuclear whorls narrowly shouldered at the summit and marked by somewhat retractively slanting, closely crowded, slender riblets, plus a lot of fine ribs immediately behind the lip. These riblets extend strongly to the summit of the whorls where they become slightly intensified, thus rendering the shoulder at the summit crenulated. Suture somewhat channeled. Periphery of the last whorl well rounded. Base narrowly openly umbilicated, well rounded, marked by the continuations of the axial riblets, which become a little weaker and a little more closely crowded toward the umbilicus; the umbilical wall is marked by slender spiral cords. The last third of the last turn is solute. The outside of the parietal wall is marked by obsolete continuations of the axial riblets. The summit of the last whorl on the solute portion forms an acute crenulated carina. Aperture oval; peristome slightly expanded and reflected all around. Operculum paucispiral, with excentric nucleus, the outer edge upturned, the last whorl covered with a rather strong deposit of fine calcareous granules.

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[9] Malakozool. Blätter, vol. 9, pp. 96–97.

[10] Proc. U. S. Nat. Mus., vol. 58, p. 60, 1920.

[11] Journ. Conchyl., vol. 39, pp. 69–211, 1891.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMIUM) SWIFTII

- Shell with spiral bands of brown.
  - Spiral bands continuous.
    - Dark spiral bands as broad as or broader than intervals that separate them.................................... **saturatum**
    - Dark spiral bands not so broad as intervals that separate them .... **barahonense**
  - Spiral bands interrupted.
    - Ground color of shell flesh-colored........................ **weinlandi**
    - Ground color of shell buff............................. **swiftii**
- Shell without spiral bands of brown................................ **azuense**

CHONDROPOMA (CHONDROPOMIUM) SWIFTII SATURATUM, new subspecies

PLATE 4, FIGURE 4

1846. *Cyclostoma semilabre* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pl. 49, fig. 18 (?).

This is a small race with very dark, broad, brown spiral bands upon a pale buff background, the bands being broader than the intervals that separate them. In some shells these bands become almost fused and give the shell a completely brown aspect. It is of the size of *Chondropoma (Chondropomium) swiftii swiftii* and differs from that in being more cylindric, much more closely ribbed and in having the last whorl less solute.

The type (U.S.N.M. No. 493299) comes from the Cuming Collection, which means that it is of Sallé's collecting. It has 3.9 whorls remaining and measures: Length, 16.6 mm.; greater diameter, 8.8 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 354953 contains a paratype from the same source.

CHONDROPOMA (CHONDROPOMIUM) SWIFTII BARAHONENSE, new subspecies

PLATE 4, FIGURE 3

This race was collected by W. L. Abbott at Barahona. The truncated shell is narrowly oval, the spiral bands are continuous, and though conspicuous they are narrower than the spaces that separate them, in which respect it differs from *Chondropoma (Chondropomium) swiftii saturatum,* in which the reverse holds true. It is also much larger than that race.

The type (U.S.N.M. No. 354956) has 4.3 whorls remaining and measures: Length, 18.9 mm.; greater diameter, 10 mm.; lesser diameter, 8.6 mm.

U.S.N.M. No. 354957 contains 2 topotypes from the same source.

CHONDROPOMA (CHONDROPOMIUM) SWIFTII WEINLANDI Pfeiffer

Plate 4, Figure 5

1847. *Cyclostoma semilabre* Sowerby, Thesaurus conchyliorum, p. 106, pl. 24, fig. 60.
1850. *Cyclostoma semilabre* Pfeiffer, Zeitschr. Malak., vol. 7, p. 80.
1850. *Chondropoma semilabre* Gray, Nomenclature of molluscous animals and shells in the collection of the British Museum, pt. 1, Cyclophoridae, pp. 55–56, in part.
1851. *Chondropoma semilabre* Pfeiffer, Zeitschr. Malak., vol. 8, p. 173.
1852. *Chondropoma semilabre* Pfeiffer, Monographia pneumonopomorum viventium, vol. 1, p. 286.
1852. *Chondropoma semilabre* Pfeiffer, Conspectus cyclostomaceorum . . ., p. 45, in part.
1854. *Cyclostoma semilabre* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, p. 271.
1858. *Chondropoma semilabre* H. and A. Adams, The genera of recent Mollusca, vol. 2, p. 295, pl. 86, fig. 11, a, b.
1858. *Chondropoma semilabre* Pfeiffer, Monographia pneumonopomorum viventium, vol. 1, Suppl., p. 139.
1861. *Chondropoma semilabre* Bland, Ann. Lyc. Nat. Hist. New York, vol. 7, p. 29.
1862. *Chondropoma weinlandi* Pfeiffer, Malakozool. Blätter, vol. 9, pp. 96–97.

This race occupies the lowlands bordering Lake Assuei, sometimes called Lake Saumâtre, extending east to Fond Parisien on the south shore of Lake Saumâtre, while on the north of the lakes it extends eastward to a little beyond Lake Enriquillo.

The truncated shell is of ovate outline; the ground color flesh-colored with just a mere touch of yellow. There are interrupted spiral bands of brown, and on the early postnuclear whorls there is a zone of brown immediately anterior to the suture. This is the largest subspecies.

The specimen figured (U.S.N.M. No. 354951) was collected by Sallé in "Haiti." It has a little more than 4 whorls remaining and measures: Length, 20.7 mm.; greater diameter, 11 mm.; lesser diameter, 9.2 mm.

U.S.N.M. No. 354966 contains 13 specimens collected by Henderson east of Thomazeau.

U.S.N.M. No. 162933 contains 11 specimens collected by Henderson and Simpson at Thomazeau.

U.S.N.M. No. 113694 contains 2 specimens collected by the U. S. Geological Survey in Haiti.

U.S.N.M. No. 354953 contains 2 specimens collected by Cuming.

U.S.N.M. No. 354969 contains 15 specimens collected by Henderson at Fond Parisien, Étang Saumâtre, Haiti.

U.S.N.M. No. 425529 contains 78 specimens collected by Orcutt at Fond Parisien, Étang Saumâtre, Haiti.

U.S.N.M. No. 354954 contains 3 specimens collected by D. D. Condit in the Salades between Salinas and Neiba, Barahona, Dominican Republic.

U.S.N.M. No. 57648 contains 1 specimen from Azua, Dominican Republic.

Worn specimens resemble *Chondropoma (Chondropomium) swiftii barahonense,* the truncated shell of which is slender and more ovate and has the last whorl less solute.

CHONDROPOMA (CHONDROPOMIUM) SWIFTII SWIFTII (Shuttleworth)

PLATE 4, FIGURES 1, 2

1854. *Cyclostoma swiftii* SHUTTLEWORTH, Berner Mitth., 1854, pp. 91–92.

Through the kindness of the Naturhistorische Museum at Bern, Switzerland, I have been able to examine and figure the type (pl. 4, fig. 2). It has 4 whorls remaining and measures: Length, 15.7 mm.; greater diameter, 9.1 mm.; lesser diameter, 7.3 mm.

Of this race there are in the National Museum collection a lot of specimens from various sources, some of which I know to be of Sallé's collecting, and the rest I strongly suspect are so. Unfortunately, they all bear merely the label "Haiti."

In this subspecies the truncated shell is ovate, very finely axially ribbed, and of buff ground color with interrupted spiral bands of brown. The last whorl is decidedly solute. The shell is much smaller than *Chondropoma (Chondropomium) swiftii weinlandi* and the axial ribbing is much finer.

U.S.N.M. No. 315186 contains 2 specimens, one of which we have figured on plate 4, figure 1. This has 4.4 whorls remaining and measures: Length, 16.4 mm.; greater diameter, 9.9 mm.; lesser diameter, 7.6 mm. They came from the Redfield Collection, which received them from Cuming, and were undoubtedly collected by Sallé.

U.S.N.M. No. 503994 contains 2 specimens also from the Redfield collection received from Cuming.

U.S.N.M. No. 315187 contains 3 specimens from the Evezard Collection labeled "Cuba."

U.S.N.M. No. 354970 contains 2 specimens collected by A. B. Bellows in Haiti.

CHONDROPOMA (CHONDROPOMIUM) SWIFTII AZUENSE, new subspecies

PLATE 4, FIGURE 6

1854. *Cyclostoma semilabre* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pl. 49, fig. 20.

This race has much more inflated whorls than the rest. The shell is of more broadly ovate outline and lacks the brown spiral banding.

The type (U.S.N.M. No. 493298) comes from the Cuming Collection, which means that it was collected by Sallé. It has 4.4 whorls remaining and measures: Length, 19 mm.; greater diameter, 10.8 mm.; lesser diameter, 9.5 mm.

U.S.N.M. No. 354952 contains 2 topotypes from the same source.

U.S.N.M. No. 354958 contains 1 specimen collected by Dr. Newcomb at Azua, Dominican Republic.

CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM, new species

Shell elongate-conic, ground color varying from plain flesh-colored through pale brown to almost chestnut-brown, marked with a pronounced, interrupted, rather broad, peripheral band of brown and on the base with one or more feeble interrupted spiral lines of the same color; in addition to these spiral bands, fine obscure vermiculations or fulgurations of brown are present on the spire. Nuclear whorls 2, well rounded, forming an almost truncated apex; the first smooth, the last one with faint indications of axial riblets. The postnuclear whorls are well rounded, very narrowly shouldered at the summit, almost appressed, marked by numerous closely spaced, low, rounded, retractively slanting, axial riblets which are separated by mere impressed lines only. These riblets extend strongly to the summit, which they render decidedly crenulated. Periphery of the last whorl well rounded. Base very short, strongly rounded, openly umbilicated, marked by the continuations of the axial ribs, which extend into the umbilicus, and two to five strong spiral folds on the umbilical wall. About one-tenth of the last volution is solute, the summit here forming a strong carina; the outside of the parietal wall is marked by the continuations of the axial ribs, which here are mere strong lines of growth. Aperture very broadly pyriform; posterior angle acute; peristome expanded and reflected.

The species apparently ranges from southwest Barahona Province eastward to Santo Domingo City.

Its slender form and vermiculated markings differentiate this species from the adjacent *Chondropoma (Chondropomium) swiftii weinlandi.*

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM

Shell chestnut-brown.. **nubilum**
Shell not chestnut-brown.
    Shell fulvous.. **sallei**
    Shell flesh-colored.
        Decollated shell elongate-conic........................ **vermiculatum**
        Decollated shell elongate-ovate........................ **domingense**

CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM NUBILUM, new subspecies

Plate 3, Figure 8

This race comes from Barahona. The entire shell is brown except for the buff interior of the aperture and the slightly paler peristome. Through this brown color the fine vermiculations characteristic of the species are shown.

The type (U.S.N.M. No. 354959) has 4.3 whorls remaining and measures: Length, 17.4 mm.; greater diameter, 9 mm.; lesser diameter, 7.8 mm.

CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM SALLEI, new subspecies

Plate 3, Figure 6

1846. *Cyclostoma semilabre* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pl. 49, fig. 19 (?).

This is the largest of the four subspecies. The ground color is buff with axial streaks of a paler shade, which give to the shell a somewhat watered silk effect. It most nearly resembles *Chondropoma (Chondropomium) vermiculatum domingense* in the color scheme and form, but from this it can readily be distinguished by its much larger size and the pale brown interior of the aperture.

The type (U.S.N.M. No. 354951), bearing the label "Haiti," has 4 whorls remaining and measures: Length, 19 mm.; greater diameter, 9.9 mm.; lesser diameter, 8.8 mm.

U.S.N.M. No. 354953 contains a topotype from the same source.

CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM VERMICULATUM, new subspecies

Plate 3, Figure 1

This race was collected by W. L. Abbott at Trujín near the southeastern end of the Barahona Peninsula. It is the most slender, elongate-conic race known and has coarser ribs than *Chondropoma (Chondropomium) vermiculatum sallei,* while the ground color is pale flesh-colored.

The type (U.S.N.M. No. 354961) has 5.5 whorls remaining and measures: Length, 17 mm.; greater diameter, 9.1 mm.; lesser diameter, 7.9 mm.

U.S.N.M. No. 354962 contains 16 topotypes from the same source.

U.S.N.M. No. 315187 contains 2 specimens from the Evezard Collection, without specific locality.

CHONDROPOMA (CHONDROPOMIUM) VERMICULATUM DOMINGENSE, new subspecies

Plate 3, Figure 3

This subspecies was collected by Sallé in "Santo Domingo" without further subspecific locality. In ribbing, shape, and vermiculated markings, as well as in general color pattern, it closely resembles *Chondropoma*

(Chondropomium) vermiculatum sallei. The ground color, however, is much paler, and the peristome and interior of the aperture are white.

The type (U.S.N.M. No. 354963) has 3.8 whorls remaining and measures: Length, 14.8 mm.; greater diameter, 9.2 mm.; lesser diameter, 7.6 mm.

U.S.N.M. No. 151331 contains 4 topotypes from the same source.

U.S.N.M. No. 354964 contains 2 specimens from the Redfield Collection received from Cuming, undoubtedly also of Sallé's collecting and therefore paratypes.

CHONDROPOMA (CHONDROPOMIUM) IGNOTUM, new species

Plate 5, Figure 7

Shell elongate-ovate, flesh-colored with almost continuous, rather broad, interrupted, spiral bands of brown. The outer broadly expanded peristome shows these spiral bands as rays. Nuclear whorls decollated; postnuclear whorls slightly inflated, well rounded, very narrowly shouldered at the summit and marked by retractively slanting axial riblets, which grow stronger with the increase of whorls. On the last turn they are very broad and separated by mere impressed lines of growth. Here they have the aspect of bending over to the left, which is in reality merely an optical delusion. Suture moderately constricted, not channeled; periphery inflated, well rounded. The base is moderately long, inflated and well rounded, and marked by the continuation of the axial ribs, which extend into the umbilicus. The umbilical wall is marked by strong, conspicuous, spiral cords, which increase in strength outwardly. The last whorl is solute for a short fraction of a turn. The aperture is oval; the peristome is double, the outer quite broadly expanded and flaring, somewhat sinuous; the inner moderately exserted.

The type (U.S.N.M. No. 471940) was received from the Redfield Collection with the locality label "Haiti?". It has three and a fraction whorls remaining which measure: Length, 16.6 mm.; greater diameter, 10.4 mm.; lesser diameter, 8.7 mm.

CHONDROPOMA (CHONDROPOMIUM) ASYMMETRICUM Pilsbry

Plate 6, Figure 1

1933. *Chondropoma (Chondropomella) asymmetricum* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 126–127, pl. 9, figs. 4, 5.

1933. *Chondropoma (Chondropomella) enriquillense* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 127, pl. 9, fig. 1.

Shell large, broadly ovate, rather heavy, marked by interrupted spiral bands of brown of which the elements have their long axis parallel with the axial sculpture; these elements are of irregular shape, in a general way the median ones being of lunate outline, the peripheral band stronger than the rest. Nuclear whorls 2, very small, forming a rather slender apex, smooth, except the last portion of the last turn, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are rather inflated, well rounded, narrowly shouldered at the summit, and marked by slender, sublamellar, axial riblets, which are separated by spaces about three times as wide as the riblets. These riblets become somewhat thickened at the summit, which they crenulate. Suture narrow, rather deeply channeled. Periphery inflated, well rounded. The base is moderately long, inflated, strongly rounded, and marked by the continuations of the axial ribs, which become enfeebled as they enter the broadly open umbilicus. The umbilical wall is marked by well-developed spiral threads, of which 13 occur on the outer half. The last whorl is solute for about one-tenth of a turn, continuing the shoulder as a strong carina at the posterior angle of the aperture. Aperture large, oblique, broadly ovate. Peristome double, that of the outer and basal lip very broadly expanded, reflected, and thickened. The peristome on the parietal wall is narrow; the inner peristome is reflected over the outer and appressed to it and extends over about one-half of its extent. Operculum thin, corneous, paucispiral, with submarginal nucleus, covered with a moderately thick calcareous deposit.

The specimen figured (U.S.N.M. No. 471937) was collected by C. R. Orcutt at Fond Parisien, the type locality. It has lost the early whorls; the 3.5 whorls remaining measure: Length, 24.9 mm.; greater diameter, 17.6 mm.; lesser diameter, 13.4 mm.

U.S.N.M. No. 471938 contains 7 topotypes from the same source.

U.S.N.M. No. 426041 contains a paratype from Fond Parisien, south shore of Étang Saumâtre.

CHONDROPOMA (CHONDROPOMIUM) INAEQUILABRUM, new species

PLATE 5, FIGURE 6

Shell ovate; nuclear whorls decollated; the early postnuclear whorls brown, the succeeding turns flesh-colored, marked by broad, irregular, interrupted, spiral bands of brown, the elements of which are also arranged in axial series. These bands extend upon the outer peristome, which they ray. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, narrowly shouldered at the summit, and marked by slender, retractively curved axial riblets, which are about half as wide as the spaces that separate them. Suture deeply, narrowly channeled; periphery inflated, well rounded. The base is inflated, well rounded, and marked by the continuations of the axial ribs. The broad umbilicus shows slender spiral threads on the umbilical wall. The last whorl is solute for about one-eighth of a turn. The posterior angle of the solute portion is marked by a conspicuous carina. The aperture is oval; the peristome is double, the outer very broadly expanded, reflected, and thickened on the outer and basal lip and the anterior half of the columella; the inner is reflected over and appressed to the outer for about half of the width of the outer lip.

The type (U.S.N.M. No. 471939) was collected by C. R. Orcutt on Mount Petitchemin, Department de l'Ouest, Haiti. It has 5 whorls remaining and measures: Length, 18.6 mm.; greater diameter, 12 mm.; lesser diameter, 8.5 mm.

U.S.N.M. No. 402078 contains 11 topotypes from the same source.

CHONDROPOMA (CHONDROPOMIUM) BEATENSE Clench

PLATE 5, FIGURE 3

1932. *Chondropoma (Chondropomium) beatensis* CLENCH, Proc. New England Zool. Club, vol. 12, p. 106.
1932. *Chondropoma (Chondropomium) beatensis armouri* CLENCH, *ibid.*
1932. *Chondropoma (Chondropomella) beatensis* BARTSCH, Proc. U. S. Nat. Mus., vol. 81, art. 6, p. 3, pl. 1, figs. 7, 9.

Shell elongate-conic when complete, flesh-colored with interrupted spiral zones of brown. Some of these zones are fulgurated, others merely elongated dots, and still others of these dots are joined into bands, while the one below the periphery is most conspicuous and broader than the rest. The base is also marked by interrupted bands, though less conspicuously so than the spire. The inner peristome is white, while the outer is slightly rayed. Nuclear whorls 2, straw-colored, strongly rounded. Postnuclear whorls well rounded, marked by slender, slightly retractively slanting axial riblets, which are about as wide as the spaces that separate them and which render the summit of the whorls feebly crenulated. Suture moderately constricted; periphery somewhat inflated, strongly rounded. Base narrowly umbilicated, somewhat inflated, strongly rounded, and marked by the continuation of the axial riblets. The columellar wall of the umbilicus is marked by few obsolete spiral threads near its outer margin. The last whorl is slightly solute. Aperture ovate; peristome double, the inner projecting slightly above the outer and slightly expanded; the outer slightly expanded, more so on the outer and basal lips than on the columellar border, where it is only about one-third as broad as on the rest. Operculum thin, corneous, typically chondropomoid.

The specimen described and figured (U.S.N.M. No. 403919) was collected by Dr. Wetmore on Beata Island. It has 3.5 whorls and measures: Length, 14 mm.; greater diameter, 9.4 mm. Some specimens are considerably larger than this, one with 4 whorls measuring: Length, 18 mm.; greater diameter, 11.2 mm.

U.S.N.M. No. 403896 contains 145 topotypes from the same source.

U.S.N.M. No. 414227 contains 2 paratypes received from the Museum of Comparative Zoology.

U.S.N.M. No. 414228 contains another paratype from the same source, representing *Chondropoma beatense armouri* Clench.

U.S.N.M. No. 420656 contains another specimen from the Museum of Comparative Zoology.

CHONDROPOMA (CHONDROPOMIUM) GIMBIENSE, new species

Shell rather long, varying in shape from ovate to elongate-ovate, and in coloration from buff to brown. There are axial light streaks, which give the shell a somewhat watered-silk effect, and interrupted spiral bands of brown and also vermiculations; the latter, like the dark elements in the interrupted spiral bands, are arranged in axial series. Nuclear whorls 1.6, all but the last portion smooth. This shows the beginning of the postnuclear sculpture. The postnuclear whorls are rather inflated, well rounded, narrowly shouldered at the summit, and marked by slender, very regular, slightly sinuous axial riblets, which are about as wide as the spaces that separate them. These ribs become slightly accentuated at their summit and render the shoulder finely crenulated. At irregular intervals these riblets at the summit are white and suggest tufting, but they are not fused. Suture slightly channeled. Periphery well rounded. The base is moderately long, inflated, strongly rounded, and marked by the continuations of the axial ribs, which become a little less strong as they bend into the open umbilicus. The umbilical wall is marked by a few feeble spiral threads. The last whorl is solute for almost one-fifth of a turn, the posterior angle constituting a well-marked keel, the outside of the peripheral area being marked by lines of growth only. Aperture broadly oval. Peristome double, the outer and inner being almost coextensive, the lip only slightly expanded and narrowly reflected, the doubling best shown on the basal portion of the columella. The operculum is paucispiral, with submarginal nucleus and covered on the outside with a moderately strong deposit of calcareous granules.

This species was collected by C. R. Orcutt about the Rivière Gimbi, which is near Saltrou on the south side of Haiti in the Departement de l'Ouest.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMIUM) GIMBIENSE

Length of shell more than 13 mm	saltrouense
Length of shell less than 11 mm	gimbiense

CHONDROPOMA (CHONDROPOMIUM) GIMBIENSE SALTROUENSE, new subspecies

Plate 6, Figure 2

This subspecies was also collected by C. R. Orcutt on the west side of the Rivière Gimbi. It is a much larger race and much paler in color than the typical form and shows much more conspicuously the vermiculations, which are arranged in axial zones. The interrupted spiral bands are faintly represented. The peristome and interior of the shell are pale buff.

The type (U.S.N.M. No. 471936) has lost the nuclear whorls. The 4 whorls remaining measure: Length, 14 mm.; greater diameter, 7.9 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 402166 contains 10 topotypes from the same source.

CHONDROPOMA (CHONDROPOMIUM) GIMBIENSE GIMBIENSE, new subspecies

Plate 6, Figure 3

This subspecies was collected by C. R. Orcutt on the east bank of the Rivière Gimbi in the vicinity of Saltrou. This has a small, ovate, dark shell with rather conspicuous interrupted spiral bands of brown and axial light zones between these bands, which give the shell a decidedly watered-silk effect. The aperture is broadly oval and pale chestnut-brown within, which is also the color of the peristome. Its small size will at once distinguish it from the other subspecies.

The type (U.S.N.M. No. 471935) is a complete specimen having 5.5 whorls and measures: Length, 10.2 mm.; greater diameter, 6.3 mm.; lesser diameter, 4.9 mm.

U.S.N.M. No. 402015 contains 9 topotypes from the same source.

CHONDROPOMA (CHONDROPOMIUM) EUSARCUM (Pfeiffer)

Shell small, broadly ovate-conic, and usually flesh-colored, with or without interrupted spiral bands of brown; the early postnuclear whorls always have the anterior portion brown. The postnuclear whorls are well rounded, with the summit narrowly shouldered, marked by numerous, closely spaced, slightly retractively curved axial riblets, which are strongest at the summit and render this crenulated. Periphery somewhat inflated and strongly rounded. Base short, well rounded, and marked by the continuations of the axial riblets. Umbilicus moderately broad, marked within by weak spiral threads. The last whorl is scarcely ever solute or, if so, only very narrowly so. Aperture broadly pyriform, with the posterior angle almost acute, narrowly auriculated; peristome double, the inner almost coextensive with the outer, from which it is only slightly differentiated; the doubling is best seen on the slight auricle of the posterior angle of the aperture. Outer lip only slightly expanded and reflected; inner lip even less so. Operculum paucispiral with excentric nucleus; the last turn usually with scattered calcareous granules.

The species is known only from the Dominican Republic, from where I recognize three subspecies.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMIUM) EUSARCUM

Shell more than 15 mm in length.......................... puertoplatense
Shell less than 12 mm in length.
  Axial ribs rather strong and distantly spaced................ eusarcum
  Axial ribs rather fine and closely spaced.................. catalinitense

CHONDROPOMA (CHONDROPOMIUM) EUSARCUM PUERTOPLATENSE, new subspecies

Plate 5, Figure 2

This subspecies comes from Puerto Plata, Dominican Republic. It was collected by Prime. It differs from typical *Chondropoma (Chondropomium) eusarcum eusarcum* in being larger and having the ribs much more slender and closely spaced.

The type (U.S.N.M. No. 354980) has 4.2 whorls remaining and measures: Length, 15.4 mm.; greater diameter, 9.1 mm.; lesser diameter, 8.2 mm.

CHONDROPOMA (CHONDROPOMIUM) EUSARCUM EUSARCUM (Pfeiffer)

Plate 5, Figure 5

1854. *Cyclostoma (Chondropoma) eusarcum* Pfeiffer, Proc. Zool. Soc. London, 1852, p. 143.

1920. *Chondropoma (Chondropomium) eusarcum* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 60.

This is a small race. The specimens before me, collected by Sallé, bear merely the label "Santo Domingo." It is distinguished from the other two races here described by being midway between them in size but having the axial riblets much stronger and more distantly spaced.

The specimen figured (U.S.N.M. No. 151328) has 4 whorls remaining and measures: Length, 11.8 mm.; greater diameter, 7.6 mm.; lesser diameter, 7 mm.

U.S.N.M. No. 354979 contains 3 specimens received from Sowerby and Fulton and labeled "Haiti."

U.S.N.M. No. 315145 contains 3 specimens from the Evezard Collection labeled "Santo Domingo."

CHONDROPOMA (CHONDROPOMIUM) EUSARCUM CATALINITENSE, new subspecies

Plate 5, Figure 4

This subspecies was collected by Dr. W. L. Abbott on Catalinita Island south of the Dominican Republic. It is a veritable pygmy and in its fine ribbing resembles *Chondropoma (Chondropomium) eusarcum puertoplatense.*

The type (U.S.N.M. No. 354981) has 3.8 whorls remaining and measures: Length, 9.3 mm.; greater diameter, 6.1 mm.; lesser diameter, 5.6 mm.

U.S.N.M. No. 354582 contains a young topotype.

Subgenus Chondropomella Bartsch

1932. *Chondropomella* Bartsch, Proc. U. S. Nat. Mus., vol. 81, art. 6, pp. 2–3.

Shell broadly ovate, with the postnuclear whorls inflated, well rounded, narrowly tabulated at the shoulder, and marked by numerous slightly retractively slanting, closely spaced axial riblets. The summit of the whorls is rendered feebly crenulated by the axial riblets. Periphery well rounded. Base inflated, well rounded, openly umbilicated, marked by the continuation of the axial riblets and feebly developed spiral cords between the periphery and the edge of the umbilicus. The umbilical wall is marked by stronger spiral cords. Aperture large, with a broadly expanded flaring peristome all around except at the parietal wall. The peristome not all in one plane, but somewhat sinuous, being decidedly bent in at the umbilicus. The parietal wall appears notched on account of the absence of the expanded peristome.

This species was collected by C. R. Orcutt about the Rivière Gimbi,

Type species: *Cyclostoma (Chondropoma) magnificum* 'Salle' Pfeiffer = *Chondropoma (Chondropomella) magnificum* 'Sallé' (Pfeiffer).

KEY TO THE SPECIES OF THE SUBGENUS CHONDROPOMELLA

Whorls decidedly inflated and strongly rounded................platychilum
Whorls less inflated and less strongly rounded.................. magnificum

CHONDROPOMA (CHONDROPOMELLA) PLATYCHILUM (Pfeiffer)

Plate 7, Figure 1

1847. *Cyclostoma latilabre* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pl. 10, figs. 26, 27. Not *Cyclostoma latilabris* Orbigny, 1845.
1853. *Cyclostoma platychilum* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, p. 266.

Shell large, ovate; coloration? Nuclear whorls? Postnuclear whorls inflated, strongly rounded, apparently marked by fine, closely spaced, axial riblets. Suture moderately constricted. Periphery inflated, evenly rounded. Base short, inflated, well rounded, openly umbilicated, and marked by slender spiral threads on the umbilical wall. Aperture very broadly regularly oval, peristome double, the outer broadly expanded all around except for the small area of attachment at the parietal to the preceding turn where it is narrower.

The specimen here described (U.S.N.M. No. 354984) was collected by Dr. W. L. Abbott at Trujín, which is near the southeastern end of Barahona Province, Dominican Republic. It has almost 4 whorls remaining and measures: Length, 27.9 mm.; greater diameter, 21.2 mm.; lesser diameter, 16.7 mm.

Pfeiffer, in 1847, misidentified this shell, confusing it with *Chondropometes (Chondropometes) latilabris* (Orbigny), from Mount Guayabon, Cuba. He realized this and corrected the error in 1853. No locality was assigned to it. He says he found it in the Gruner Collection. Pfeiffer's figure shows a worn individual that might have been drawn from our specimen, which is also a badly weathered individual.

Though I have no doubt about the conspecificity of our shell with Pfeiffer's *Cyclostoma platychilum,* I am assuming its right to a place in *Chondropomella,* since the sculpture is too worn to settle this definitely. Its close resemblance to *Chondropoma (Chondropomella) magnificum* suggests it place here. It differs from *magnificum* in having the whorls shorter, more inflated, and more rounded.

CHONDROPOMA (CHONDROPOMELLA) MAGNIFICUM ('Sallé' Pfeiffer)

Plate 8, Figure 7

1854. *Cyclostoma (Chondropoma) magnificum* (Sallé) Pfeiffer, Proc. Zool. Soc. London, 1852, p. 142, pl. 13, fig. 3.

1854. *Cyclostoma magnificum* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, pp. 365–366, pl. 47, figs. 20–22.

1920. *Chondropoma (Chondropomium) magnifica* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 60.

1932. *Chondropoma (Chrondopomella) magnificum* Bartsch, Proc. U. S. Nat. Mus., vol. 81, art. 6, p. 3.

Shell broadly ovate, with flesh-colored ground and interrupted axial bands of brown, which also have a spiral arrangement. The submedian band is made up of arrow-shaped markings in which the arrows point backward. A subperipheral band forms a continuous line. The base is also marked by brown spiral lines. Nuclear whorls decollated. Postnuclear whorls narrowly, tabulatedly shouldered at the summit, and slightly constricted immediately below this, marked by rather retractively slanting, distantly spaced, slender axial riblets, of which 174 occur upon the last turn. Fifty of these are crowded upon the expanded outer lip and the space about equivalent to this behind it. These ribs render the tabulated shoulder slightly crenulated. Periphery of the last whorl rounded. Base inflated, strongly rounded, openly broadly umbilicated, marked by eight poorly developed and rather distantly spaced spiral cords, while on the umbilical wall there are ten additional spiral cords which are much stronger than those on the rest of the base. Aperture large, broadly oval; peristome double, the outer very broadly expanded and decidedly reflected, the reflected portion marked with numerous concentric lines of growth; the expanded peristome is of almost the same width all around except on the parietal wall, where it is much narrower, giving the peristome the impression of being decidedly notched. The expanded outer peristome is not all in one plane, but the part at the posterior angle is slightly bent forward to form a somewhat earlike element, while the part over the umbilicus is pressed in, to cover this by two-thirds, thus rendering the expanded portion of the inner lip of the peristome decidedly sinuous; the expanded outer peristome shows the colored bands as alternate zones of flesh-color and brown. The inner peristome is only slightly expanded; it is reflected over and fused with the outer.

The specimen described and figured (U.S.N.M. No. 354983) has 4.3 whorls and measures: Length, 15.3 mm.; greater diameter, 19.4 mm.; lesser diameter, 15.5 mm. We have not seen the operculum, but Pfeiffer states that it is typically chondropomoid.

H. Crosse[12] states that Sallé collected the type on rocks at the entrance of a cave at Barrera, Dominican Republic. This locality is in the Province of Azua about 16 miles southwest of the town of Azua.

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[12] Journ. Conchyl., vol. 38, p. 296, 1890.

ARTICULIPOMA, new subgenus

In the southern half of Hispaniola there occurs a group of medium-sized members of the subfamily Chondropominae that vary in shape from elongate-ovate to broadly ovate, with the color scheme usually flesh-colored, variously marked with spots, dots, or fulgurations of brown, whose elements are usually arranged in more or less axial and spiral series. The distinctive features of this group, however, are the sublamellar, closely spaced, axial ribs rendered vertebrated by low, broad, spiral, tumid areas, which one might call half-cords or depressed half-cords, but their breadth contrasted with their elevation does not justify this designation.

Type species: *Chondropoma (Articulipoma) caroli,* new species.

Practically all our material was collected by Charles Russell Orcutt while working for the Smithsonian Institution in that territory. The hardship that he endured during this campaign was almost superhuman, and it is for this reason that I am bestowing his name upon two of the species belonging here. The following is quoted from one of his letters:

"My first trip covered the trails from Port-au-Prince to Croix des Bouquets, Gautier, Fond Parisien, Fonds Verettes, Bodarie and Saltrou; returning from Saltrou up the Gimbi River to the settlement and mountain of the same name, Bois Contre, and the pine forests of the Trou Coucan (four districts) to Croix des Bouquets and the point of departure. So far it still seems that the territory assigned me is a "lemon" of purest water. Fonds Verettes to Bodarie no shells; spots from Bodarie to Saltrou and up the Gimbi dry river banks a variety of small shells were found (dead only). After crossing the divide more small shells were found, in part alive, all along the route back to the Plaine du Cul-de-Sac.

"Along the southern Dominican border it is not safe for a lone traveler; out of Fonds Verettes I was attacked after dark and wounded in the forehead with a stone. I bled like a stuck pig but did not lose consciousness and rendered first aid; the Negroes nearby put a hut at my disposal and kept a fire burning all night and I resumed my tramp alone the next day to Bodarie. I secured a lot of ferns and mosses in the 'rain forest' before reaching Bodarie. . . ."

KEY TO THE SPECIES OF THE SUBGENUS ARTICULIPOMA

Peristome double.
    Shell ovate.
        Axial ribs coarse.
            Interior of aperture brown........................... cieloense
            Interior of aperture flesh-colored........................ caroli

Axial ribs not coarse.
Shell elongate-ovate.................................. **xenicum**
Shell ovate.
Outer peristome of almost uniform width........ **naniculum**
Outer peristome not of almost uniform width.
Outer peristome of inner lip much wider than the rest .... **russelli**
Outer peristome of inner lip much narrower than the rest................................ **woodringi**
Shell elongate-ovate.. **fluxum**
Peristome simple .... **loweanum**

CHONDROPOMA (ARTICULIPOMA) CIELOENSE, new species

PLATE 6, FIGURE 4

Shell ovate, pale brown with darker, narrow, interrupted, spiral bands of brown. The interior of the aperture is pale brown and so is the peristome. Nuclear whorls 2, forming a rather slender apex, moderately inflated, well rounded, and smooth, except the last portion of the last whorl, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are inflated, strongly rounded, appressed at the summit, and marked by slender articulated axial riblets, which are separated by mere impressed lines. These riblets become thickened at the summit where three or four are heavier and project more than the rest, forming white projections at the summit, the intervals between being a little wider than the white projections. The spiral sculpture consists of low, obsolete, broad cords, which render the riblets vertebrated at their junctions. Suture well constricted; periphery inflated, strongly rounded. The base is moderately long, strongly rounded, and marked like the spire. Umbilicus broadly open; this area marked by fine spiral threads and the continuation of the axial riblets. The last whorl is solute for one-fifth of a turn. Aperture broadly ovate. The peristome is double; the outer broadly flaringly expanded, forming an auricle at the posterior angle, widest on the columella and narrowest on the parietal wall. The operculum is unknown.

The type (U.S.N.M. No. 472023) was collected by Dr. W. L. Abbott at an elevation of 3,000 feet on the slopes of Loma di Cielo in the Boharuco Mountains, Dominican Republic. It has 4 whorls remaining and measures: Length, 12.4 mm.; greater diameter, 8.1 mm.; lesser diameter, 6.5 mm.

U.S.N.M. No. 472024 contains 18 topotypes from the same source.

Though I have not seen an operculum of this species, all the shell characters suggest *Articulipoma.*

The strength of the axial ribbing allies to it *C. (A.) caroli,* from which, however, it is easily distinguished by its ovate shape and brown peristome.

CHONDROPOMA (ARTICULIPOMA) CAROLI, new species

Shell of medium size, broadly ovate, flesh-colored, with spots and dots and sometimes fulgurations of varying sizes of chestnut-brown and arranged more or less in spiral and axial series. A series of these brown spots, much larger than the rest, is present immediately below the summit. The peristome may be rayed or unicolor. Nuclear whorls almost 2, inflated, strongly rounded, smooth except the last portion of the last turn, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are decidedly inflated, strongly rounded, narrowly shouldered at the summit, and marked by rather strong, well-rounded, slightly retractively curved axial riblets, which are almost as broad as the spaces that separate them. These ribs are strongest developed near the summit, where small groups of three or more project above an equal or slightly larger number, which are a little shorter. This gives to the summit of the whorls a tufted effect, but the ribs do not become fused at the summit here, as they do in *Chondropomorus,* but remain distinct. The projecting ones are usually heavier than the shorter ones, forming the interval between them. The spiral sculpture consists of quite low, broad, rounded tumidities. I use this term to distinguish them from true cords, for they hardly have the aspect of a cord. It is these tumidities that render the axial ribs vertebrated at their junctions. The narrow tuberculated summit renders the suture almost channeled. Periphery inflated, very strongly rounded. The base is short, inflated, strongly rounded, sculptured like the spire. The open umbilicus shows the continuation of the axial ribs on its wall and a series of rather strong spiral cords. The last whorl is solute for a varying distance in the different races. Aperture broadly ovate. Peristome double; the outer auriculated at the posterior angle, broadly expanded on the outer and basal lip as well as on the anterior half of the columella, where it attains its greatest width; it is narrower on the parietal wall. The inner peristome is decidedly exserted and slightly reflected. Operculum thin, paucispiral, with the nucleus halfway between submarginal and subcentral, covered on the outside with scattered calcareous granules.

This species was collected by Charles Russell Orcutt, for whom I take pleasure in naming it. He found one race at Bodarie on the trail between Fonds Verettes and Saltrou, and another on Gimbi Mountain on the trail between Saltrou and Croix des Bouquets, Haiti.

The following key and descriptions will help to distinguish the two subspecies:

KEY TO THE SUBSPECIES OF CHONDROPOMA (ARTICULIPOMA) CAROLI

Peristome rayed	caroli
Peristome unicolor	bodariense

CHONDROPOMA (ARTICULIPOMA) CAROLI CAROLI, new subspecies

Plate 6, Figure 7

This race was collected by C. R. Orcutt on Gimbi Mountain. It is the largest member of the group, is broadly ovate, and has strong spots forming a broad interrupted band at the summit, with the broadly flaring peristome rayed.

The type (U.S.N.M. No. 472021) has 3.8 whorls remaining and measures: Length, 13 mm.; greater diameter, 9.2 mm.; lesser diameter, 7.3 mm.

U.S.N.M. No. 402068 contains 13 topotypes from the same source.

Its size and rayed peristome will distinguish this race from *C. (Articulipoma) caroli bodariense.*

CHONDROPOMA (ARTICULIPOMA) CAROLI BODARIENSE, new subspecies

Plate 6, Figure 8

This race was collected "above Bodarie" by C. R. Orcutt. It is smaller than *C. (A.) c. caroli* and does not have the pronounced interrupted bands of broad spots at the summit, nor is the outer peristome rayed.

The type (U.S.N.M. No. 472022) comes from Mr. Orcutt's first station, above Bodarie, and is a perfect specimen having 6 whorls. It measures: Height, 11.3 mm.; greater diameter, 7.9 mm.; lesser diameter, 6.2 mm.

U.S.N.M. No. 402499 contains 6 specimens collected by Orcutt on the road between Bodarie and Saltrou.

U.S.N.M. No. 402555 contains 53 specimens collected by Orcutt above Bodarie.

This subspecies differs from typical *Chondropoma (Articulipoma) caroli caroli* in being smaller and lacking the rays on the outer peristome.

CHONDROPOMA (ARTICULIPOMA) XENICUM Pilsbry

Plate 6, Figure 6

1933. *Chondropoma xenicum* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 124–125, pl. 6, figs. 11, 12.

Shell ovate, flesh-colored, with faint interrupted spiral bands of brown, which form rays on both peristomes. Nuclear whorls 2, slender, strongly inflated, well rounded, and smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are moderately well rounded, appressed at the summit, and marked by fairly strong, almost vertical axial riblets, which are separated by mere impressed lines. These riblets become more strongly developed at the summit, where groups of them form feeble pseudotufts. The spiral sculpture consists of low, rounded, tumid bands, which render the axial riblets articulate. Suture well constricted; periphery inflated, well rounded. The base is moderately long, well rounded, and marked by the continuations of the axial ribs. The open umbilicus shows broad, rounded cords that are quite strong on the outer half. The aperture is irregularly ovate, the curve of the outer lip being more accentuated than that of the parietal wall and columella. Peristome double; the outer broadly expanded, forming an auricle at the posterior angle, widest at the columella; the inner is moderately exserted and slightly expanded. Both are beautifully rayed. At the insertion of the columella a brown spot marks the termination of the brown spiral band. Operculum thin, corneous, paucispiral, with the nucleus halfway between submarginal and subcentral and covered by a rather heavy deposit of calcareous granules on all but the outer edge.

Dr. Pilsbry's type (Acad. Nat. Sci. Phila. No. 160980), which is here described and figured, was collected by D. C. Pease at Sr. Del Monte's Finca 5 or 6 miles west of Barahona in a gully near Salvation at an altitude of 3,000 feet. It has 4.5 whorls remaining and measures: Length, 10.9 mm.; greater diameter, 6.8 mm.; lesser diameter, 5.2 mm.

This species is easily distinguished from the other known Dominican member of the group, *Chondropoma (Articulipoma) cieloense,* by having a much more elongate form and a light-rayed peristome.

CHONDROPOMA (ARTICULIPOMA) NANICULUM, new species

PLATE 6, FIGURE 5

Shell very small, ovate, pale straw color, with the outside of the umbilical wall and the peristome white. Nuclear whorls 2, inflated, strongly rounded, and smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are inflated, very strongly rounded, very narrowly shouldered at the summit, and marked by slightly retractively curved, sublamellar axial riblets of which several become very slightly accentuated at the summit, where they project a trifle to form inconspicuous false tufts, a character less expressed in this species than in any I have so far seen. These riblets are about as wide as the spaces that separate them. The spiral sculpture consists of low, broad, obsolete, spiral, tumid areas, which render the axial riblets articulate. Suture strongly constricted; periphery inflated, strongly rounded. The base is short, inflated, strongly rounded, and marked by the axial riblets; the spiral sculpture here is quite obsolete, and the riblets scarcely become articulate. The umbilicus is broad and open, and the umbilical area is marked by the fine continuation of the axial riblets and several scarcely indicated spiral threads on the outer half. The last whorl is solute for one-tenth of a turn. Aperture broadly ovate; peristome double, the outer, basal, and columellar lip moderately broadly expanded and marked by concentric lines of growth. On the parietal wall and the upper half of the columella the outer peristome is only about half the width of the rest. The inner peristome is exserted and slightly reflected. The operculum is thin and paucispiral, with the nucleus halfway between submarginal and subcentral; the outside is covered with fine calcareous granules.

The type (U.S.N.M. No. 472025) was collected by C. R. Orcutt at Fonds Verettes. It is a complete specimen of 5.3 whorls and measures: Length, 7.8 mm.; greater diameter, 5.1 mm.; lesser diameter, 4.9 mm.

The extremely diminutive size alone will readily distinguish this from all the other known species.

CHONDROPOMA (ARTICULIPOMA) RUSSELLI, new species

Shell broadly ovate, flesh-colored or of pale buff ground color, spotted, vermiculated, or fulgurated with inconspicuous, interrupted spiral or axial bands of chestnut-brown. The nuclear whorls are flesh-colored in some of the races and brown in others. The peristome likewise varies in the different races from flesh-colored to pale brown. Nuclear whorls about 2, inflated, strongly rounded, and smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are strongly inflated, well rounded, and marked by very closely spaced, fine axial riblets, which are rendered articulate by the low, broad, spiral, tumid areas. Suture well constricted; periphery inflated, strongly rounded. The base is very short, inflated, strongly rounded, openly umbilicated, and marked like the spire with the spiral sculpture a little less strongly emphasized, however, which renders the articulation less pronounced. The umbilical area shows feeble spiral threads. Aperture very broadly ovate. Peristome double, the outer very broadly expanded, strongly auriculate at the posterior angle and even more flaringly expanded on the anterior columellar border, quite narrow on the parietal wall; the inner peristome is exserted and well reflected. The operculum is paucispiral, with almost subcentral nucleus, covered on the outside with a thin deposit of calcareous granules.

Several races of this species were collected by C. R. Orcutt on the path leading from Fonds Verettes to Saltrou; they represent occupants of distinct mountain spurs.

The species can readily be distinguished from *Chondropoma (Articulipoma) caroli* by its much finer and more closely spaced ribbing. The following key will help to differentiate the subspecies:

KEY TO THE SUBSPECIES OF CHONDROPOMA (ARTICULIPOMA) RUSSELLI

Shell large, length more than 12 mm. . . . . russelli
Shell not large, length less than 11 mm.
  Early whorls light. . . . . tesbori
  Early whorls dark. . . . . caibai

CHONDROPOMA (ARTICULIPOMA) RUSSELLI RUSSELLI, new subspecies

PLATE 8, FIGURE 6

This race was collected by C. R. Orcutt at his second station near Bodarie. It represents shells almost as large as those of *Chondropoma (Articulipoma) caroli caroli*, from which the finer, more closely spaced ribs will at once distinguish it. Like that it has the interrupted band of brown spots at the summit. It differs from the other subspecies of *Chondropoma (Articulipoma) russelli* by its large size and by the exceedingly broadly expanded outer peristome.

The type (U.S.N.M. No. 472026) is a complete specimen, having 6 whorls and measuring: Length, 13.3 mm.; greater diameter, 9.7 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 402570 contains 9 topotypes from the same source.

CHONDROPOMA (ARTICULIPOMA) RUSSELLI TESBORI, new subspecies

PLATE 8, FIGURE 4

This race was collected by C. R. Orcutt at his fourth station above Haiti, is much smaller than typical *Chondropoma (Articulipoma) russelli russelli,* is less conspicuously marked but has the peristome much darker and less flaringly expanded, and has the same close ribbing that characterizes *russelli.* It differs from both *russelli* and *caibai* in having the nuclear whorls pale.

The type (U.S.N.M. No. 472027) has 5.7 whorls remaining and measures: Length, 10.7 mm.; greater diameter, 6.7 mm.; lesser diameter, 5.8 mm.

U.S.N.M. No. 472028 contains 10 topotypes from the same source.

U.S.N.M. No. 402541 contains 3 specimens collected by Mr. Orcutt south of Fonds Verettes on the trail to Bodarie, on the north slope.

CHONDROPOMA (ARTICULIPOMA) RUSSELLI CAIBAI, new subspecies

PLATE 8, FIGURE 5

This race was collected by C. R. Orcutt at his fourth station above Bodarie. It is a small race, being a little more conic in outline of spire than the others and having the nuclear whorls dark, the peristome pale brown, and the whorls more strongly marked with brown, which here assume a vermiculated axial pattern.

Its small size will differentiate it from *Chondropoma (Articulipoma) russelli russelli,* and its small size, dark tip, and stronger color markings will distinguish it from *Chondropoma (Articulipoma) russelli tesbori.*

The type (U.S.N.M. No. 472029) is a perfect specimen of almost 6 whorls and measures: Length, 9.2 mm.; greater diameter, 6 mm.; lesser diameter, 5.3 mm.

U.S.N.M. No. 402576 contains 9 topotypes from the same source.

CHONDROPOMA (ARTICULIPOMA) WOODRINGI, new species

Shell ovate, varying from unicolor flesh-colored to interruptedly spirally banded to almost vermiculated. The interrupted elements of the spiral bands are arranged in axial series. There is usually an interrupted band of brown at or near the summit that even in the unicolor specimens is obsoletely indicated. The nuclear turns begin with a dark brown spot. Interior of the aperture flesh-colored, showing the banding of the exterior on the inside. The nucleus consists of 2.2 whorls, which form a rather blunt apex. The postnucleur whorls are inflated and strongly rounded and are crossed by numerous closely spaced axial riblets, which are separated by mere impressed lines. A number of these riblets fuse at the summit to form rather strong denticles. The spiral sculpture consists of weak, rather closely spaced threads, which are about as wide as the spaces that separate them and which render the axial riblets nodulose at their junction, thus forming a vertebrated pattern. The summit of the whorls is slightly tabulated. Periphery inflated and strongly rounded. Base short, inflated, strongly rounded, rather widely openly umbilicated, and marked by a weak continuation of the axial riblets and exceedingly feeble spiral sculpture except on the umbilical wall where near the outer edge a couple of feeble threads are indicated. The last whorl is solute for about one-tenth of a turn. Aperture broadly oval; peristome double, the inner reflected and adnate to the outer; the outer peristome is expanded on the outer lip and more so on the anterior portion of the inner lip. It is much narrower on the parietal wall and does not form a conspicuous auricle at the posterior angle as is the case in *C. (A.) russelli.* The operculum is typically articulipomid.

The type (U.S.N.M. No. 536861) was collected by Dr. W. C. Woodring 5 miles north of Hatillo on the road to Sabana de la Mar, Dominican Republic. It has 6.5 whorls and measures: Length, 16.2 mm.; greater diameter, 10.2 mm.; lesser diameter, 8.0 mm.

U.S.N.M. No. 533200 contains 20 topotypes.

This species is larger than any of the other Articulipomas and can readily be differentiated from *C. (A.) russelli* by having the peristome of the inner lip much narrower than the rest.

CHONDROPOMA (ARTICULIPOMA) FLUXUM, new species

PLATE 7, FIGURES 2–11

Shell varying considerably in shape from elongate-ovate. The ground color may be buff or pale brown. There are interrupted, almost continuous, wavy, spiral bands of brown, which vary considerably in width and spacing. The peristome and the parietal wall portion of the solute whorls are buff. The peristomes show the color bands as rays. Nuclear whorls almost 2, inflated, well rounded, forming a slender apex. The postnuclear whorls are inflated, strongly rounded, and marked by almost vertical sublamellar axial ribs, which are rendered scalloped by broad, low, rounded, tumid, spiral ridges, which give a vertebrated aspect to the ribs. These ribs extend strongly above the summit of the whorls as false tufts. The tufts may consist of two to five riblets that project to usually form a more or less pointed projection. The spaces that separate the ribs are as wide as the riblets. Suture strongly constricted;

periphery inflated, well rounded. The base is short, inflated, rounded, and marked by the same type of sculpture as the spire, but here the axial riblets are a little wider, while the broad spiral tumid elements are stronger, the last one forming a peripheral cord. The base is broadly openly umbilicated. The last whorl is solute for about one-fourth of a turn; the parietal wall of the solute portion shows only axial riblets. Aperture very broadly oval, almost subcircular. Peristome double; the outer broadly expanded, a little wider on the lower half of the columella than on the rest, and a very trifle narrower on the parietal wall. The inner is moderately exserted and reflected. The operculum is paucispiral with almost central nucleus, bearing a few calcareous granules on the outside.

The type (U.S.N.M. No. 536862), plate 7, figure 2, which comes from one-half mile north of Miragoane, collected by Eyerdam, has 4 whorls remaining and measures: Length, 10.3 mm.; greater diameter, 6.1 mm.; lesser diameter. 4.7 mm.

U.S.N.M. No. 380270 contains 94 topotypes from the same source.

U.S.N.M. No. 380021 contains 1 specimen collected by Eyerdam 1 mile north of Miragoane.

U.S.N.M. No. 300421 contains 7 specimens collected by Eyerdam north of Miragoane.

U.S.N.M. No. 380062 contains 6 specimens collected by Eyerdam 2 miles northeast of Miragoane.

U.S.N.M. No. 380054 contains 2 specimens collected by Eyerdam 5 miles north of Miragoane.

U.S.N.M. No. 380110 contains 34 specimens collected by Eyerdam at Miragoane.

U.S.N.M. No. 380129 contains 38 specimens collected by Eyerdam on the north shore of Lake Miragoane.

U.S.N.M. No. 380421 contains 7 specimens collected by Eyerdam west of Lake Miragoane.

U.S.N.M. No. 493322 contains 11 specimens collected by Henderson and Bartsch at Miragoane.

U.S.N.M. No. 402997 contains 68 specimens collected by Orcutt on the estate of the Haitian American Sugar Plantation north of Port-au-Prince.

U.S.N.M. No. 380275 contains 197 specimens collected by Eyerdam 8 miles north of Anse au Veau.

U.S.N.M. No. 380069 contains 25 specimens collected by Eyerdam on the top of Mount Rochelle.

U.S.N.M. No. 425312 contains 1 specimen collected by Eyerdam at Aquin.

U.S.N.M. 425378 contains 4 specimens collected by Orcutt at St. Louise.

U.S.N.M. No. 402754 contains 1 specimen collected by Orcutt near Les Cayes.

This is a most variable species and for this reason exceedingly puzzling. It appears to extend along the coast line from the Haitian American Sugar Co. establishment north of Port-au-Prince to west of Miragoane. We also have it from Mount Rochelle. There are also some dead specimens from Aquin and St. Louise from the south coast. It is possible that these may be crab-carried.

I have given a photograph of a series of specimens showing the range in size. The smallest specimen, figured as plate 7, figure 6, has 3.8 whorls remaining and measures: Length, 7.2 mm.; greater diameter, 4.7 mm.; lesser diameter, 3.3 mm. The largest specimen, figured as plate 7, figure 9, has 4.9 whorls remaining, and measures: Length, 14.8 mm.; greater diameter, 7.3 mm.; lesser diameter, 6 mm. The illustration will show the range of intermediates.

CHONDROPOMA (ARTICULIPOMA) LOWEANUM (Pfeiffer)

PLATE 8, FIGURE 3

1854. *Cyclostoma (Chondropoma) Loweanum* PFEIFFER, Proc. Zool. Soc. London, 1852, pp. 142–143.

1854. *Cyclostoma Loweanum* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, vol. 1, sect. 19, pp. 367–368, pl. 47, figs. 15, 16.

Shell elongate-ovate, rather thin, whitish, marbled with brown and irregularly streaked. The postnuclear whorls are somewhat inflated, strongly rounded, and marked by low lamellar axial ribs, which become intensified near the summit where they form false tufts; they do not become fused here as in *Chondropomorus*. The central members of these tufts are higher than the rest, and the group slopes fore and aft. These ribs are narrower than the spaces that separate them and are rendered vertebrated by the spiral threads, which are also narrower than the spaces that separate them. The suture is rendered serrulate by the tufts. Periphery inflated, well rounded. Base narrowly umbilicated, somewhat inflated, well rounded, and marked by the continuations of the axial ribs and spiral threads, which become increasingly stronger from the periphery toward and in the umbilicus. Last whorl solute for a short distance. Aperture ovate; peristome simple, somewhat thickened at the edge. Operculum said by Pfeiffer to be like that of *Chondropoma pictum*.

I have not seen specimens of this species but have based my description partly upon Pfeiffer's diagnosis and in part upon an enlarged photograph of the type here reproduced. Pfeiffer states that the specimen was gathered by Sallé in "Santo Domingo."

The type is in the British Museum and has almost 7 whorls and measures: Length, 17.0 mm.; greater diameter, 9.0 mm.

The simple lip and large size will distinguish this species from all the other known Haitian Articulipomas.

LINDENIPOMA, new subgenus

In this subgenus the shell is elongate-turrited. The whorls are marked by slender axial riblets extending from the summit over the periphery into the umbilicus; these riblets are rendered vertebrated by the obsolete spiral threads. The group resembles typical *Chondropoma* in the absence of tufting of the ribs at the summit and the subgenus *Articulipoma* in the vertebrating of the ribs, but it differs from this by the absence of the false tufting.

Type species: *Chondropoma (Lindenipoma) lindenianum* Weinland. The group extends through the southern part of Hispaniola.

KEY TO THE SPECIES OF THE SUBGENUS LINDENIPOMA

Greater diameter more than 9 mm	**kazikum**
Greater diameter less than 8 mm	**lindenianum**

CHONDROPOMA (LINDENIPOMA) KAZIKUM, new species

PLATE 9, FIGURE 5

Shell elongate-turrited, pale buff, with interrupted spiral bands of brown; the dots composing these bands are of irregular spacing as far as their spiral separation is concerned, but coincide axially; they extend over spire and base and show on the inside of the aperture. There is at the tip of the nucleus a broad chestnut zone covering the anterior third of the width of the whorl. Nuclear whorls 2, inflated, well rounded, smooth except the last portion of the last whorl, which shows the beginning of the postnuclear axial sculpture. The postnuclear whorls are decidedly inflated, very strongly rounded, appressed at the summit, and marked by slender, almost lamellar axial riblets, which are decidedly more distantly spaced on the early whorls than on the last. On this they almost equal the spaces separating them; they extend prominently from the summit over the inflated periphery into the umbilicus. These ribs are rendered vertebrated by the obsolete, rather closely spaced, spiral threads. Suture strongly constricted; periphery decidedly inflated, well rounded. The base is short, inflated, well rounded, openly moderately widely umbilicated and marked like the spire. The umbilical wall bears several spiral threads. The last whorl is solute for one-twentieth of a turn, somewhat angulated at the posterior angle. Aperture very broadly ovate; peristome simple, slightly expanded at the edge. The operculum is thin, corneous, paucispiral, with the nucleus halfway between submarginal and subcentral.

The type (U.S.N.M. No. 493322) comes from the Dominican Republic, without definite locality. It is a perfect specimen having 7.3 whorls and measures: Length, 19.7 mm.; greater diameter, 9.6 mm.; lesser diameter, 8.8 mm. The large size will at once distinguish this from the other species.

U.S.N.M. No. 315172 contains 2 topotypes from the same source.

CHONDROPOMA (LINDENIPOMA) LINDENIANUM Weinland

Shell elongate-conic, flesh-colored, marked with irregular, interrupted bands of brown arranged both in axial and spiral series, the markings at the summit and those on the base assuming a little stronger aspect than the rest. There is a brown zone on the middle of the inner lip. The nuclear whorls form a somewhat blunt mammillated apex; the first turn is smooth and well rounded, the rest of the nuclear spire is marked by slender axial riblets. Postnuclear whorls well rounded, with the summit almost appressed and marked by strong, somewhat retractively slanting axial riblets, which extend prominently from the summit, where occasionally they become slightly expanded over the periphery into the umbilicus. These riblets are rendered feebly wavy by obsolete spiral threads. Suture moderately constricted. The base is well rounded, moderately openly umbilicated, and marked by the continuation of the axial ribs and several strong spiral cords within the umbilicus. The last whorl is slightly solute immediately behind the peristome. Aperture broadly oval; posterior angle obtuse. Peristome simple; outer and basal lip slightly expanded and somewhat reflected; the inner and parietal wall not expanded. The operculum is thin, corneous, paucispiral, with the nucleus halfway between submarginal and subcentral.

This species breaks up into three races as follows:

KEY TO THE SUBSPECIES OF CHONDROPOMA (LINDENIPOMA) LINDENIANUM

Axial ribs rather distantly spaced .... lindenianum
Axial ribs not distantly spaced.
    Last whorl rather long .... manni
    Last whorl rather short .... goanni

CHONDROPOMA (LINDENIPOMA) LINDENIANUM LINDENIANUM Weinland

Plate 9, Figure 3

1880. *Chondropoma Lindenianum* Weinland, Jahrb. deutschen malak. Ges., vol. 7, pp. 344–345.

This race centers about Port-au-Prince, extending somewhat west, east, and south thereof. Its southern limitation appears to be Pétionville. It is readily distinguished from the other two subspecies here recognized by having the axial riblets much more distantly spaced than those and in also being somewhat more slender.

The specimen described and figured (U.S.N.M. No. 354986) is one of 14 taken from the woods near Port-au-Prince. It is a perfect individual having 7.4 whorls and measures: Length, 16 mm.; greater diameter, 7.7 mm.; lesser diameter, 6.4 mm.

U.S.N.M. No. 162926 contains 24 specimens collected by Henderson and Simpson 5 miles west of Port-au-Prince.

U.S.N.M. No. 162927 contains 68 specimens collected by Henderson and Simpson at Port-au-Prince.

U.S.N.M. No. 160059 contains 4 specimens collected by F. H. Andrews at Port-au-Prince.

U.S.N.M. No. 354987 contains 1 specimen collected by Henderson at Pétionville.

U.S.N.M. No. 472012 contains 51 specimens collected by Henderson and Simpson 8 miles west of Port-au-Prince.

U.S.N.M. No. 492916 contains 9 specimens collected by Orcutt at Port-au-Prince.

In addition to these there are three lots, 7 specimens, from Haiti without specific locality.

CHONDROPOMA (LINDENIPOMA) LINDENIANUM MANNI Clench and Aguayo

Plate 9, Figure 6

1937. *Chondropoma (Chondropomorus) manni* Clench and Aguayo, Mem. Soc. Cubana Hist. Nat., vol. 11, No. 2, pp. 65–66.

Our material was collected by John B. Henderson at Furcy at an elevation of 3,000 feet. This is also the type locality from which Clench described his species. In this race the shell has the whorls higher between summit and suture than they are in *Chondropoma (Lindenipoma) lindenianum goanni,* and the shell is longer and stouter. The axial ribs are also stronger and stouter and almost as closely spaced as in that subspecies.

The specimen figured (U.S.N.M. No. 354992) has 5.4 whorls remaining and measures: Length, 16 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.9 mm.

U.S.N.M. No. 354993 contains 8 topotypes from the same source.

CHONDROPOMA (LINDENIPOMA) LINDENIANUM GOANNI, new subspecies

Plate 9, Figure 1

This short and chubby race comes from Fonds Verettes. The ribs are separated by spaces no wider than the ribs.

The type (U.S.N.M. No. 493321) has 5 whorls remaining and measures: Length, 13.8 mm.; greater diameter, 7.7 mm.; lesser diameter, 6 mm.

U.S.N.M. No. 354988 contains 5 topotypes from the same source.

Subgenus Chondropoma Pfeiffer

1847. *Chondropoma* Pfeiffer, Zeitschr. Malak., vol. 6, p. 109.

Shell ranging in form from ovate-conic to elongate-conic. The axial sculpture consists of ribs or riblets, which vary considerably in strength in the different species. The riblets are never gathered into tufts at the summit. The spiral sculpture is also rather variable, but regardless of its strength it is found upon all parts of the spire and base. The peristome may be simple or expanded. No breathing device is present. Operculum typically chondropomoid.

Type species: *Cyclostoma semilabris* Lamarck = *Chondropoma (Chondropoma) semilabris* (Pfeiffer).

KEY TO THE HISPANIOLAN SPECIES OF THE SUBGENUS CHONDROPOMA

- Peristome double.
  - Outer peristome uniformly broadly flaringly expanded.
    - Last whorl strongly granular.
      - Shell very broadly ovate .... manielense
      - Shell ovate but not very broadly ovate.
        - Shell large and stout .... gonavense
        - Shell small and slender .... genevievae
    - Last whorl obscurely granular .... blandum
  - Outer peristome not uniformly broadly flaringly expanded.
    - Outer peristome of inner lip broader than the rest.
      - Shell large .... semilabris
      - Shell small .... blanchardi
    - Outer peristome of inner lip not broader than the rest.
      - Outer peristome of inner lip narrower than the rest.
        - Axial ribs lamellose .... annae
        - Axial ribs not lamellose.
          - Shell ovate.
            - Granulation fine .... quisquense
            - Granulation coarse .... eyerdami
          - Shell elongate-ovate .... tortugaense
      - Outer peristome of inner lip not narrower than the rest.
        - Shell of turbinid outline.
          - Granulation strong .... rabelense
          - Granulation feeble .... abbotti
        - Shell not of turbinid outline, ovate.
          - Granulation strong .... montalbense
          - Granulation feeble .... molense
- Peristome single.
  - Truncated shell more than 15 mm. long .... brownianum
  - Truncated shell 13 mm. long or less.
    - Shell narrowly umblicated.
      - Whorls short and strongly inflated .... solum
      - Whorls larger and less inflated .... catalinense
    - Shell broadly umblicated .... vanattae

CHONDROPOMA (CHONDROPOMA) MANIELENSE, new species

Shell broadly ovate, almost turbinate, rather widely umbilicated, varying from flesh-colored to pale orange, marked with interrupted, rather broad spiral bands of brown, the elements of which are also arranged in axial series. These markings are present on spire and base. The expanded peristome is pale yellow. Nuclear whorls 2.5, well rounded, smooth except for the last portion, which shows the beginning of the postnuclear sculpture. These turns form a rather large elevated apex. Postnuclear whorls inflated, strongly rounded, and marked by narrow threadlike spirals and less conspicuous, somewhat broader axial ribs, the junctions of the two forming conspicuous, strongly elevated, elongate nodules whose long axis coincides with the spiral threads. The spaces that separate these spiral threads are about three or four times as wide as the threads, and the spaces that separate the axial riblets are also wider than the riblets. Suture very slightly channeled. Periphery of the last whorl inflated, strongly rounded. Base short, inflated, strongly rounded, and marked like the spire. The umbilical wall has the axial threads closely approximated and the spiral threads a little more concentrated than on the spire. Aperture broadly ovate, almost subcircular. Peristome double, the outer broadly expanded of about the same width all around except at the posterior angle, where it tends slightly to auriculation; it is marked with concentric lamellae. The inner peristome is slightly exserted and narrowly reflected over the outer. Operculum thin, corneous, paucispiral, with a slight deposit of calcareous granules on the outside.

This species is represented by two subspecies, which occupy the Barahona Peninsula of the Dominican Republic. These may be distinguished by the following key:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) MANIELENSE

Greater diameter more than 11 mm.	**montivagum**
Greater diameter less than 10 mm.	**manielense**

CHONDROPOMA (CHONDROPOMA) MANIELENSE MONTIVAGUM, new subspecies

Plate 10, Figure 2

A series of specimens of this race was collected by Dr. W. L. Abbott in the Bahoruco Mountains at an altitude of 3,500 feet, 2 miles north of Maniel Viejo, Dominican Republic.

This is a large race with the shell much broader and more widely umbilicated and with paler peristome and paler general coloration.

The type (U.S.N.M. No. 471963) has 6.1 whorls remaining, and measures: Length, 16.2 mm.; greater diameter, 11.7 mm.; lesser diameter, 8.9 mm.

U.S.N.M. No. 171964 contains 17 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) MANIELENSE MANIELENSE, new subspecies

Plate 10, Figure 3

A large series of specimens of this race was collected by Dr. W. L. Abbott in debris among rocks by a small cave in a small savanna one hour's walk west of Maniel Viejo, Dominican Republic.

This race is distinguished from *Chondropoma (Chondropoma) manielense montivagum* by its smaller size, less wide umbilication, and darker-colored peristome.

The type (U.S.N.M. No. 471962) has 4.3 whorls remaining and measures: Length, 12.1 mm.; greater diameter, 9.8 mm.; lesser diameter, 7.2 mm.

U.S.N.M. No. 363826 contains 214 topotypes from the same source.

U.S.N.M. No. 425505 contains 58 specimens collected by Dr. W. L. Abbott at a cave near Maniel Viejo, at an altitude of 2,500 feet.

CHONDROPOMA (CHONDROPOMA) GONAVENSE, new species

Shell ovate, flesh-colored, with interrupted spiral bands of brown. These consist of distantly spaced spots, which are also arranged in axial series and really give the shell more of an axially marked pattern than a spiral one. Nuclear whorls about 2, strongly rounded, smooth, forming a rather slender apex. The postnuclear whorls are inflated, strongly rounded, and marked by numerous retractively slanting, slender axial riblets and equally numerous spiral threads; the spacing of these two elements, being about equal, forms an exceedingly regular fenestrated pattern. The junctions of the axial ribs and spiral threads form rounded tubercles, which give to the surface a filelike aspect. The summit of the whorls is narrowly shouldered and gives to the suture a slightly channeled appearance. Periphery of the whorls inflated, strongly rounded, and marked like the spire. The base is moderately long, inflated, strongly rounded, and also marked like the spire except on the umbilical wall, where the spiral threads assume almost the strength of cords, while the axial riblets become even a little more slender and more concentrated. Aperture very broadly oval, almost subcircular. Peristome double; the outer very broadly flaringly expanded and adnate to the preceding turn on the parietal wall, marked by feeble concentric laminae; the inner is moderately exserted and reflected over about one-third of the outer to which it is adnate. Operculum thin, paucispiral, with the nucleus halfway between marginal and subcentral. The outer surface is covered with a thin deposit of calcareous granules.

This species ranges over the territory north of the Cul-de-Sac to L'Arcahaie and Gonave Island, Haiti. It breaks up into several subspecies which the key and additional diagnosis will differentiate.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) GONAVENSE

Shell very strongly inflated.
  Length more than 19 mm.................................... finitimum
  Length less than 18 mm.................................... arcahaiense
Shell not strongly inflated.. gonavense

CHONDROPOMA (CHONDROPOMA) GONAVENSE FINITIMUM, new subspecies

PLATE 10, FIGURE 4

This race is the largest one of the group we collected on the northwestern rim of the Cul-de-Sac, north of Port-au-Prince. It differs from *Chondropoma (Chondropoma) gonavense gonavense* by its much larger size and much more inflated whorls and the much more closely spaced granulations and the lack of raying of the outer peristome. In all these characters it agrees with *Chondropoma (Chondropoma) gonavense arcahaiense,* from which its much larger size will easily differentiate it.

The type (U.S.N.M. No. 493300) has a little more than 4 whorls remaining and measures: Length, 20 mm.; greater diameter, 14 mm.; lesser diameter, 11 mm.

U.S.N.M. No. 493301 contains 9 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) GONAVENSE ARCAHAIENSE, new subspecies

PLATE 10, FIGURE 1

This small race was collected by Walter J. Eyerdam on rocks 42 miles north of Port-au-Prince, that is, in the neighborhood of L'Arcahaie. It closely resembles *Chondropoma (Chondropoma) gonavense finitimum* but is at once distinguished from this by its small size.

The type (U.S.N.M. No. 471972) has 3.5 whorls remaining and measures: Length, 17 mm.; greater diameter, 12 mm.; lesser diameter, 9.1 mm.

U.S.N.M. No. 479980 contains 2 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) GONAVENSE GONAVENSE, new subspecies

PLATE 10, FIGURE 5

We have a large series of this race from various localities on Gonave Island. It differs from the specimens from the adjacent shore by being more slender and in having the whorls less inflated and the axial and spiral threads more distantly spaced. The granulations, therefore, are more distantly spaced. The outer peristome also is rather conspicuously rayed on the outer lip.

The type (U.S.N.M. No. 471965) comes from near Anse à Galets, Gonave Island. It has 4.2 whorls remaining and measures: Length, 18.4 mm.; greater diameter, 12.2 mm.; lesser diameter, 9.2 mm.

U.S.N.M. No. 471966 contains 45 topotypes.

U.S.N.M. No. 471967 contains 42 specimens collected by Orcutt above Anse à Galets, Gonave Island.

U.S.N.M. No. 471968 contains 44 specimens collected by Orcutt in the hills at 1,000 feet elevation above Anse à Galets.

U.S.N.M. No. 380248 contains 2 specimens collected by Eyerdam at Anse à Galets.

U.S.N.M. No. 380253 contains 1 specimen collected by Eyerdam at Trou Louis, Gonave Island.

U.S.N.M. No. 471970 contains 30 specimens collected by Orcutt at Étroites, Gonave Island.

U.S.N.M. No. 471971 contains 99 specimens collected by Orcutt on Gonave Island.

U.S.N.M. No. 380216 contains 33 specimens collected by Eyerdam near L'Abricots, Gonave Island.

U.S.N.M. No. 380198 contains 4 specimens collected by Eyerdam in the forest at Morne Corps, Gonave Island.

U.S.N.M. No. 499352 contains 1 specimen collected by S. W. Parish at the southeast point of Gonave Island.

CHONDROPOMA (CHONDROPOMA) GENEVIEVAE, new species

PLATE 11, FIGURE 4

Shell elongate-ovate, flesh-colored, with interrupted, distantly spaced, axial streaks of brown, which become more closely approximated on the last whorl. Nuclear whorls almost 3, inflated, well rounded, smooth, forming a slender apex. Postnuclear whorls inflated, well rounded, very narrowly shouldered at the summit, and marked by decidedly retractively slanting axial riblets, which are about one-half as wide as the spaces that separate them, and slender spiral threads equaling the axial riblets in strength and spacing. The junctions of these two elements form conspicuous, almost spinose nodules. The periphery of the last whorl is well rounded. The base is rather long, well rounded, moderately broadly umbilicated, and marked with the same type of sculpture as that characterizing the spire. The umbilical wall shows spiral threads and the feeble continuation of the axial riblets. Aperture broadly pear-shaped, decidedly auriculated at the posterior angle; peristome double, the outer broadly flaringly expanded all around and adnate to the preceding turn at the parietal wall. When viewed squarely this flaring peristome covers the umbilicus. The inner peristome is rather strongly exserted and reflected partly over the outer, but is distinct. Operculum thin, paucispiral, with a moderately strong deposit of calcareous granules.

The type (U.S.N.M. No. 471973) was collected by Mr. and Mrs. E. C. Leonard at the base of a cliff near the mouth of the Rivière des Côtes de Fer between Jean Rabel and Le Mole, Haiti. It has 4.6 whorls remaining and measures: Length, 14.6 mm.; greater diameter, 8.4 mm.; lesser diameter, 6.5 mm.

This species suggests the members of *Chondropoma (Chondropoma) gonavense,* but its much narrower form will at once distinguish it from that complex.

U.S.N.M. No. 471974 contains 384 topotypes.

U.S.N.M. No. 471975 contains 182 specimens collected by Mr. and Mrs. E. C. Leonard at the base of a limestone cliff near Rivière des Côtes de Fer, Haiti.

U.S.N.M. No. 471976 contains 40 specimens collected by Mr. and Mrs. Leonard at Bombardopolis, Haiti.

U.S.N.M. No. 471977 contains 2 specimens collected by Mr. and Mrs. Leonard west of Bombardopolis, Haiti.

CHONDROPOMA (CHONDROPOMA) BLANDUM (Pfeiffer)

PLATE 9, FIGURE 4

1854. *Cyclostoma (Chondropoma) blandum* PFEIFFER, Proc. Zool. Soc. London, 1852, pp. 143-144.

1854. *Cyclostoma blandum* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, vol. 1, sect. 19, p. 367, pl. 47, figs. 13, 14.

Truncated shell ovate, translucent, whitish to brownish violet, marked by interrupted spiral lines of brownish red; the elements composing these lines are also arranged in axial series. The postnuclear whorls are somewhat inflated, well rounded, and marked by slender, almost sublamellar, axial ribs, which are separated by spaces about twice the width of the ribs. These ribs become slightly intensified at the summit, which they render finely serrulate. The spiral sculpture consists of feeble threads, best developed on the whorls preceding the last; they are also a little narrower than the spaces that separate them and render the axial riblets almost vertebrated. On the last whorl the spiral sculpture becomes much enfeebled. Suture moderately constricted. Periphery inflated and well rounded. Base moderately long, very narrowly umbilicated, inflated, well rounded, and marked by the continuation of the axial ribs and spiral threads, the latter increasing in strength toward and in the umbilicus. Aperture ovate. Peristome double, the outer almost evenly broadly expanded all around, forming a slight auricle at the posterior angle; the inner moderately exserted. Operculum simple.

The above description is based in part upon Pfeiffer's description and in part upon enlarged photographs of the type, which is in the British Museum. I have not seen specimens of this species. The type here figured has 4 whorls remaining and measures: Length, 17.5 mm.; greater diameter, 10.5 mm.

Pfeiffer states that the shell was collected by Sallé in "Santo Domingo."

CHONDROPOMA (CHONDROPOMA) SEMILABRIS (Lamarck)

PLATE 11, FIGURE 5

1822. *Cyclostoma semilabris* LAMARCK, Histoire naturelle des animaux sans vertè bres, vol. 6, pt. 2, p. 146.

1920. *Chondropoma (Chondropoma) semilabre* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 62.

Decollated shell elongate-ovate, pale straw-colored, with interrupted spiral bands of brown; the dashes composing these bands are arranged in both axial and spiral series. The interior of the aperture is a little darker than the outside, showing the color bands within. Peristome white. Nuclear whorls 2, well rounded except for the last portion of the last turn, which shows a few incremental lines. The nuclear spire is blunt at the apex; the remaining turns are strongly rounded, narrowly shouldered at the summit, and marked by slender, low, rounded axial riblets, which are about as broad as the spaces that separate them, and by numerous spiral cords, which are as strong as or a little stronger than the axial ribs and a trifle more distantly spaced than these. The junctions of the axial ribs and the spiral cords form low, rounded tubercles, which give to the entire surface of the shell a finely granulose aspect. The spaces inclosed between the axial ribs and spiral threads are almost squarish pits. Suture rendered slightly channeled by the weak shoulder at the summit, which is crenulated. The periphery of the last whorl is well rounded. Base moderately long, well rounded, narrowly umbilicated, and marked by the continuations of the axial ribs and spiral threads, the axial ribs becoming a little less strong on the base than on the spire, while the spiral threads have about the same strength. Last whorl appressed or a trifle solute. Aperture ovate; peristome double, the outer forming a slight auricle at the posterior angle, expanded and reflected, broader on the parietal and inner lip than on the outer; the inner peristome is slightly elevated above the outer, slightly expanded and slightly reflected. Operculum corneous, paucispiral, with submarginal nucleus, the outside covered with a thin deposit of fine calcareous granules.

The specimen figured (U.S.N.M. No. 493302) comes from St. Marc, Haiti. It has a little more than 4 whorls remaining and measures: Length, 19.2 mm.; greater diameter, 12.2 mm.; lesser diameter, 9.8 mm.

Chondropoma (Chondropoma) semilabris (Lamarck) has met with many vicissitudes. We believe this species, which occupies the Cul-de-Sac region north to St. Marc, to be the true *semilabris* (Lamarck). There is considerable variation in size, the specimens about St. Marc being larger than those to the south, and it is possible that careful collecting with specific locality data may require the breaking up of this species into a number of local races.

U.S.N.M. No. 493303 contains 2 specimens from the same source.

U.S.N.M. No. 162938 contains 3 specimens collected by Henderson and Simpson at St. Marc, Haiti.

U.S.N.M. No. 471978 contains 6 specimens collected by Henderson at St. Marc.

U.S.N.M. No. 392845 contains 95 specimens collected by Bartsch on a bluff 1 mile north of St. Marc.

U.S.N.M. No. 471979 contains 6 specimens collected by Henderson and Bartsch at 200-300 feet altitude above St. Marc.

U.S.N.M. No. 493304 contains 47 specimens collected by Henderson and Bartsch between Kilometer 85 and 90 on the road from Port-au-Prince to St. Marc.

U.S.N.M. No. 393799 contains 48 specimens collected by Bartsch 4 miles from St. Marc.

U.S.N.M. No. 471980 contains 7 specimens collected by Bartsch in the mountains above L'Arcahaie, Haiti.

CHONDROPOMA (CHONDROPOMA) BLANCHARDI, new species

Shell ovate, pale straw-colored, with distantly spaced, very feeble interrupted spots of brown, which have both an axial and spiral arrangement. The nuclear whorls are decollated in all our specimens; the postnuclear whorls are inflated, strongly rounded, very narrowly shouldered at the summit, and marked by numerous slender, rather closely spaced, retractively slanting axial riblets and a little more distantly spaced and a little stronger spiral threads. The junctions of these two elements form feeble, rounded nodules, while the spaces inclosed between them are more or less rectangular pits. The summit of the whorls is rendered crenulate by the slight thickening of the ribs at this place. Suture slightly channeled. The periphery is inflated and strongly rounded. The base is short, decidedly inflated and very strongly rounded, and marked by the feeble continuation of the axial riblets, which here are more or less reduced to almost lines of growth, and spiral threads, which are of about the same strength, or almost so, as those on the spire. The umbilicus is moderately open and marked by feeble spiral threads and incremental lines. Aperture broadly oval, oblique; peristome double, decidedly thickened; the outer moderately broadly expanded, more so on the basal portion of the inner lip than on the rest, forming a weak auricle at the posterior angle. The inner peristome is also thickened, appressed and adnate to the outer. Operculum thin, corneous, paucispiral, and covered with a thin granular deposit.

This species, which suggests *Chondropoma (Chondropoma) semilabris,* is at once distinguished from this by its much smaller size, heavier shell, decidedly more inflated whorls, and much stronger thickened peristome.

I am recognizing two subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) BLANCHARDI

Shell elongate-ovate.. blanchardi
Shell broadly ovate.. marci

CHONDROPOMA (CHONDROPOMA) BLANCHARDI BLANCHARDI, new subspecies

PLATE 8, FIGURE 2

This, the smaller of the two races here recognized, we gathered at Pétionville in the hills south of the Cul-de-Sac, above Port-au-Prince. It is much more slender than *Chondropoma (Chondropoma) blanchardi marci* and has the last whorl more elongated and a proportionately smaller aperture.

The type (U.S.N.M. No. 493305) has 4.2 whorls remaining and measures: Length, 11.6 mm.; greater diameter, 6.7 mm.; lesser diameter, 5.8 mm.

U.S.N.M. No. 493306 contains 5 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) BLANCHARDI MARCI, new subspecies

PLATE 8, FIGURE 1

This race we collected on the limestone cliffs bordering the railway a little south of St. Marc, Haiti. It is readily distinguished from *Chondropoma (Chondropoma) blanchardi blanchardi* by its much more obese form and much broader umbilicus and proportionately larger aperture.

The type (U.S.N.M. No. 493307) has 4.2 whorls remaining and measures: Length, 12.9 mm.; greater diameter, 8.7 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 493308 contains 6 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) ANNAE, new species

PLATE 9, FIGURE 2

Shell elongate-turrited, flesh-colored, with interrupted spiral bands of brown, which vary considerably in width and spacing. Nuclear whorls 2.5, inflated, well rounded, smooth. The postnuclear whorls are inflated, strongly rounded, and marked by decidedly retractively curved, slender axial lamellae, which vary considerably in strength and spacing, finer lamellae frequently alternating with the heavier; sometimes more than one or two of the finer are present between the heavier. The heavier lamellae, while irregularly spaced, average about three times the thickness of the finer threads. The spiral sculpture consists of slender threads that render the lamellae slightly sinuous and serrulate at the edge, as well as somewhat cusped at their summit. Suture moderately constricted; periphery inflated, well rounded. The base is short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs and spiral threads; the latter are a little stronger here, particularly on the anterior part, than on the spire. The umbilical wall bears several threads on its outer half. The last whorl is solute for about one-fifth of a turn. Aperture broadly oval; peristome double. In perfect specimens the outer is narrowly expanded, somewhat wavy and of equal width except on the parietal wall where it is narrower. The inner is slightly exserted and very slightly reflected. The operculum is thin, corneous, paucispiral, with the nucleus halfway between subcentral and marginal.

This species appears to occupy the Samaná Peninsula and extends over the western half of the south coast of Samaná Bay, Dominican Republic.

The type (U.S.N.M. No. 472041) was collected by Mrs. Gerrit S. Miller, Jr., on the upper Orange Keys on the south coast of Samaná Bay. It has 8 whorls remaining and measures: Length, 16.8 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.7 mm.

I take pleasure in naming this for Mrs. Miller.

U.S.N.M. No. 369147 contains 135 topotypes from the same source.

U.S.N.M. No. 369138 contains 61 specimens collected by Gerrit S. Miller, Jr., on the lower Orange Keys, Dominican Republic.

U.S.N.M. No. 472042 contains 47 specimens collected by W. L. Abbott a quarter of a mile from San Lorenzo Bay, Samaná Bay.

U.S.N.M. No. 425524 contains 56 specimens collected by H. W. Krieger at San Juan, Samaná Peninsula.

U.S.N.M. No. 425406 contains 3 specimens collected by Gerrit S. Miller, Jr., at Boca del Infierno, Samaná Bay.

U.S.N.M. No. 499183 contains 1 specimen collected in the center of the south side of Samaná Bay, Samaná Peninsula.

CHONDROPOMA (CHONDROPOMA) QUISQUENSE, new species

Shell ovate, varying from flesh-colored to pale orange, unicolor or marked with faint interrupted spiral streaks or zones or spots of brown. Peristome white. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are well rounded, very narrowly shouldered at the summit, and marked by numerous very closely approximated, slender, slightly retractively curved axial riblets and equally fine and closely spaced, spiral threads, which make the spaces inclosed between them appear thimble-pitted; the junction of the two scarcely forms nodules, but at the summit of the whorls the riblets become slightly intensified and render this crenulated. The periphery of the last whorl is well rounded. The base is rather short, inflated, well rounded, openly umbilicated, and marked like the spire, but here the sculpture is a little more enfeebled. Within the umbilicus the wall is marked by slender spiral threads, while the axial sculpture is reduced to mere incremental lines. The last whorl is solute for a fraction of a turn, and the posterior angle behind the peristome marks a sharp carina. The peristome is double; the outer is rather broadly expanded at the basal and outer lip, forming a conspicuous auricle at the posterior angle. On the inner lip the outer peristome is quite narrow; the inner peristome is slightly exserted and reflected and appressed at the outer. Operculum thin, corneous, paucispiral.

This species comes from the Barahona Peninsula, Dominican Republic, and we have two races before us, which the following key and diagnosis will differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) QUISQUENSE

Last whorl decidedly solute	**quisquense**
Last whorl almost appressed	**sculptior**

CHONDROPOMA (CHONDROPOMA) QUISQUENSE QUISQUENSE, new subspecies

Plate 11, Figure 1

In this race, which was collected by Dr. W. L. Abbott at Trujín in the southeastern portion of Barahona Province, Dominican Republic, the last whorl is very decidedly solute and the umbilicus more open than in *Chondropoma (Chondropoma) quisquense sculptior.*

The type (U.S.N.M. No. 471954) has 4 whorls remaining and measures: Length, 15 mm.; greater diameter, 9.2 mm.; lesser diameter, 7.6 mm.

U.S.N.M. No. 471955 contains 27 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) QUISQUENSE SCULPTIOR, new subspecies

Plate 11, Figure 2

This race was collected by Dr. W. L. Abbott in the mountains near Maniel Viejo, in Barahona Province, Dominican Republic, at an altitude of 2,500 feet. It differs from *Chondropoma (Chondropoma) quisquense*

quisquense in having the sculpture a little more pronounced, in possessing a less broadly expanded umbilicus, and in having the last whorl less solute.

The type (U.S.N.M. No. 471956) has 4.2 whorls remaining and measures: Length, 14.2 mm.; greater diameter, 8.9 mm.; lesser diameter, 7 mm.

CHONDROPOMA (CHONDROPOMA) EYERDAMI, new species

Shell ovate, decidedly variable in color, which ranges from flesh-colored to chestnut-brown. It may be unicolor or variously banded or axially streaked. Nuclear whorls a little more than 2, well rounded, forming a pointed apex, smooth except for the last portion of the last whorl, which shows the beginning of the postnuclear sculpture. The postnuclear whorls are inflated, strongly rounded, narrowly shouldered at the summit, and marked by sublamellar, retractively curved, slender riblets and equally strong spiral threads, the junctions of which form slender nodules whose long axis coincides with the axial sculpture. The spaces separating the axial riblets are a little wider than those that separate the spiral threads. The axial riblets become a little stronger at the summit, which they finely crenulate. Periphery of the last whorl well rounded. The base is short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the sculpture that characterizes the spire, but slightly less strong. Within the umbilicus the spiral threads become intensified and the axial riblets are reduced to almost incremental lines. The last whorl is solute for about one-tenth of a turn, showing a conspicuous carina at the posterior angle behind the peristome. Peristome double; the outer narrow on the inner lip and broadly expanded on the basal and outer peristome, forming a moderately conspicuous auricle at the posterior angle; the inner slightly exserted and reflected over the outer to which it is appressed and adnate. Operculum thin, paucispiral, with the nucleus halfway between submarginal and subcentral, covered on the outside with a moderately thick deposit of calcareous granules.

This species comes from the south and east coasts of Gonave Island. In form, sculpture, and size it strongly suggests *Chondropoma (Chondropoma) brownianum,* from which, however, it is at once distinguished by its double peristome and stronger sculpture.

I am recognizing two subspecies: One collected on the south-central coast of Gonave Island and the other from the southeastern part of the island. The following key, diagnosis, and illustrations will help to differentiate them:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) EYERDAMI

Shell large and dark colored.. eyerdami
Shell small and flesh-colored.. parishae

CHONDROPOMA (CHONDROPOMA) EYERDAMI EYERDAMI, new subspecies

PLATE 11, FIGURE 6

This race was collected by Walter J. Eyerdam on the shore of the Saline near Madame Siadae on the south-central coast of Gonave Island. It is easily distinguished from *Chondropoma (Chondropoma) eyerdami parishae* by its much larger size and darker coloration.

The type (U.S.N.M. No. 471957) has 4 whorls remaining and measures: Length, 17 mm.; greater diameter, 10.6 mm.; lesser diameter, 8.9 mm.

U.S.N.M. No. 380165 contains 18 topotypes from the same source.

U.S.N.M. No. 381013 contains 10 specimens collected by Eyerdam 1 mile northeast of Point-à-Raquette, Gonave Island.

U.S.N.M. No. 380177 contains 5 specimens collected by Eyerdam on the shore of Saline, Gonave Island.

U.S.N.M. No. 393587 contains 2 specimens collected by Eyerdam at the caves of En Café, Gonave Island.

CHONDROPOMA (CHONDROPOMA) EYERDAMI PARISHAE, new subspecies

PLATE 11, FIGURE 3

This race is represented by a single partly broken specimen collected by Mrs. S. W. Parish at the southeastern point of Gonave Island. It can readily be distinguished from *Chondropoma (Chondropoma) eyerdami eyerdami* by its smaller size and paler coloration.

The type (U.S.N.M. No. 499351) has 3.8 whorls remaining and measures: Length, 13.7 mm.; greater diameter, 7.9 mm.; lesser diameter, 7 mm.

CHONDROPOMA (CHONDROPOMA) TORTUGAENSE, new species

PLATE 12, FIGURE 4

Shell small, elongate-ovate, flesh-colored, with interrupted bands of brown. These bands are arranged in axial series of dots, which are very distantly spaced. Peristome white. Nuclear whorls a little more than 2, strongly rounded, smooth, forming a slender apex. The postnuclear whorls are marked by rather distantly spaced, slender, retractively curved, almost sublamellar axial riblets and feeble spiral threads, which are also distantly spaced; that is, they about equal the axial ribs in spacing. The intersection of these two elements forms sharp nodules, whose long axis coincides with the axial sculpture. Summit of the whorls appressed. Suture fairly strongly constricted. Periphery well rounded. The base is moderately long, well rounded, and marked by the same sculptural elements that characterize the spire, but a little less strongly expressed. Within the umbilicus spiral threads are present, which are stronger than those on the spire, while the axial riblets become closely approximated and enfeebled. The last whorl is solute for a fraction of a turn. The aperture is almost circular. Peristome double; the outer is broadly expanded on the basal and outer lip and narrowly so on the parietal wall, tapering toward this on the columella. The outer peristome is fluted at the edge and marked by feeble concentric lamellae; it tends slightly to an auriculation at the posterior angle. The inner peristome is exserted, slightly expanded, and about one-half as wide as the outer. The operculum is paucispiral with subcentral nucleus and has a thin deposit of calcareous granules on the outside.

The type (U.S.N.M. No. 471958) and 71 topotypes (U.S.N.M. No. 425512) were collected by Dr. W. L. Abbott from soil at the foot of an inland elevated coral cliff on the north side of Tortue Island, Haiti. The type has 4.5 whorls remaining and measures: Length, 9.7 mm.; greater diameter, 5.4 mm.; lesser diameter, 4.6 mm.

CHONDROPOMA (CHONDROPOMA) RABELENSE, new species

Plate 13, Figure 2

Shell of turbinid outline, pale yellow, with faint interrupted spiral bands, which are merely indicated, of which two are present on the spire and two on the base. Nuclear whorls almost 2, inflated, strongly rounded, forming a small, rather low, broad apex. Postnuclear whorls decidedly inflated, strongly rounded, and marked by retractively curved, axial, slender, ribs, of which 82 are present on the last turn. The spiral sculpture consists of threads about as strong as the axial riblets, of which 13 are present between the summit and the periphery. The junctions of the axial ribs and spiral threads form small sharp cusps. Suture slightly channeled. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs, which extend as slender hairlines on the umbilical wall and spiral threads, of which 11 are present on the base and 14 on the umbilical wall. On the base the junctions of the axial ribs and spiral threads form slender spines, which is not the case on the umbilical wall. Last whorl solute for about one-sixth of a turn. Aperture broadly oval; peristome double, the outer narrowly expanded all around; the inner rather strong, exserted, reflected, and appressed to the outer, leaving the outer peristome projecting but slightly beyond the inner. Operculum typically chondropomid with subcentral nucleus.

The type (U.S.N.M. No. 503995) was collected by Mr. and Mrs. E. C. Leonard between Jean Rabel and Le Mole, Haiti. It has 5 whorls and measures: Height, 11.1 mm.; greater diameter, 9.2 mm.; lesser diameter, 8.0 mm.

U.S.N.M. No. 503996 contains 105 topotypes.

CHONDROPOMA (CHONDROPOMA) ABBOTTI, new species

Plate 13, Figure 1

Shell thin, of turbinid outline, pale yellow, with almost continuous bands of brown, of which a narrower one is at the summit, one immediately above the periphery, and the other midway between the two. The base also shows two more interrupted spiral bands. These markings are apparent on the inside of the aperture and on the outer peristome. Nuclear whorls 2, inflated, strongly rounded and microscopically granulose, forming a slender apex. Postnuclear whorls inflated, strongly rounded, and marked by slightly retractively curved axial riblets, of which 116 are present on the last turn. The spiral sculpture consists of threads a little stronger than the axial riblets, of which 13 are present on the last whorl. The junctions of the axial ribs and spiral threads form weak nodules. Suture strongly constricted. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, widely openly umbilicated, and marked by the continuation of the axial ribs, which extend as feeble hairlike elements upon the umbilical wall. The spiral sculpture of the base consists of 15 threads equaling those of the spire in strength, and there are 11 spiral threads on the umbilical wall. In both places they feebly denticulate the junction with the axial ribs. The last whorl is solute for about one-sixth of a turn. Aperture broadly oval; peristome double, the outer moderately flaringly expanded, thin; the inner coextensive with the outer on the anterior portion of the outer lip and appressed to the outer peristome on the inner lip. Operculum typically chondropomid, with subcentral nucleus.

The type (U.S.N.M. No. 218045) was collected by Dr. W. L. Abbott at Trou Bon Dieux, Port-de-Paix, Haiti. It is a complete specimen of 5.5 whorls and measures: Height, 11.5 mm.; greater diameter, 9.2 mm.; lesser diameter, 7.0 mm.

U.S.N.M. No. 354926 contains 29 topotypes.

CHONDROPOMA (CHONDROPOMA) MONTALBENSE, new species

Plate 12, Figure 1

Shell elongate, ovate, straw-colored, with broad, interrupted, spiral bands of brown, which in reality form a series of more or less quadrangular spots, also arranged in axial series. These markings are present on both spire and base. The peristome is flesh-colored. Nuclear whorls a little more than 2, forming a slender spire, well rounded, smooth. The postnuclear whorls are somewhat inflated, well rounded, narrowly shouldered at the summit, and marked by slender, retractively curved axial riblets, which are separated by spaces only a trifle wider than the riblets and spiral threads a trifle wider spaced than the axial riblets. The junctions of the two form well-rounded nodules, while the spaces inclosed between them are rectangular pits having their long axis coinciding with the axial sculpture. The axial riblets render the summit of the whorls slightly crenulated. The entire surface of the shell has the aspect of a fine file. Suture narrowly channeled. The periphery of the last whorl is inflated, well rounded. The base is moderately long, very inflated, strongly rounded and marked by the same sculpture that characterizes the spire; openly umbilicated, the umbilical wall marked by slender spiral threads and the axial sculpture, which is here reduced to almost incremental lines. The last whorl is solute for about one-tenth of a turn. Aperture broadly ovate. Peristome double, the outer moderately expanded and of about the same width all around, forming a feeble auricle at the posterior angle and marked by feeble, concentric lamina. The inner exserted and reflected over about one-half of the outer. Operculum thin, corneous, paucispiral, with the nucleus halfway between submarginal and subcentral, covered with a thin deposit of calcareous granules.

The type (U.S.N.M. No. 471959) was collected by C. R. Orcutt at Coteaux, Haiti. It has 4 and a fraction whorls remaining and measures: Length, 14.5 mm.; greater diameter, 8.1 mm.; lesser diameter, 7.0 mm.

U.S.N.M. No. 404899 contains 23 topotypes from the same source.

U.S.N.M. No. 404036 contains 6 specimens collected by Orcutt on the hill north of Coteaux.

U.S.N.M. No. 404741 contains 2 specimens collected by Orcutt in a cleared field west of Metesignix, east of Port à Piment.

U.S.N.M. No. 404131 contains 2 specimens collected by Orcutt from the hill east of Port à Piment.

U.S.N.M. No. 403765 contains 16 specimens collected by Orcutt at Port Salut.

U.S.N.M. No. 404785 contains 1 specimen collected by Orcutt 1 mile west of Point Sable.

U.S.N.M. No. 404889 contains 1 specimen collected by Orcutt at 2,000 feet elevation at Anse à Juif.

U.S.N.M. No. 404820 contains 1 specimen collected west of Carpentier.

U.S.N.M. No. 403139 contains 2 specimens collected by Orcutt at Aquin.

CHONDROPOMA (CHONDROPOMA) MOLENSE, new species

PLATE 12, FIGURE 7

Shell rather large, thin, ovate, flesh-colored, and marked with axial, interrupted, distantly spaced bands of brown. Nuclear whorls decollated. The postnuclear whorls are decidedly inflated, somewhat barrel-shaped, narrowly shouldered at the summit, and marked on the first two turns by slender, retractively curved axial riblets and equally fine spiral threads, which here form a fine filelike surface. On the remaining two turns this sculpture becomes very much enfeebled and the axial sculpture almost disappears, being reduced to mere lines of growth, while the spiral sculpture forms quite regular threads. The suture is narrowly channeled. The periphery of the last whorl is inflated and well rounded. The base is moderately long, well rounded, and marked like the spire of the last whorl except that here the granulations, owing to the intersection of axial and spiral elements, become more pronounced. The umbilicus is moderately open and shows spiral threads. The last whorl is solute for a fraction of a turn, with a decided keel at the posterior angle behind the peristome. Aperture broadly oval. The peristome is double; the outer moderately expanded and decidedly thickened; the inner very narrow, scarcely at all exserted and appressed to the outer. Operculum unknown.

The type (U.S.N.M. No. 471960) and another specimen (U.S.N.M. No. 471961) were collected by Mr. and Mrs. E. C. Leonard on coral rocks between the roots of a tree on the trail west of Le Mole River, northwest Haiti. It has 4.2 whorls remaining and measures: Length, 17.1 mm.; greater diameter, 10.4 mm.; lesser diameter, 8.3 mm.

CHONDROPOMA (CHONDROPOMA) BROWNIANUM Weinland

PLATE 12, FIGURE 8

1880. *Chondropoma brownianum* WEINLAND, Jahrb. deutschen malak. Ges., vol. 7, p. 347, pl. 12, fig. 14.

Truncated shell elongate-ovate, varying in ground color from flesh color through horn color to pale brown to purplish brown, unicolor or usually marked with dark bands of brown, which vary greatly in different individuals in intensity of color and also in the width and length of the streaks that constitute them, for these spiral bands are usually interrupted and arranged in axial and spiral series. The anterior half of the base and peristome are white or almost so, even in dark-colored specimens. Nuclear whorls 2, well rounded, forming a somewhat truncated apex, smooth except for the last portion of the last turn, which shows a few feeble incremental lines. The postnuclear whorls are well rounded, narrowly shouldered at the summit, and marked by rather strong, well-rounded, threadlike, retractively slanting axial riblets, which render the summit crenulated and which are about one-third as wide as the spaces that separate them. The spiral sculpture consists of very regular and regularly spaced threads equaling the axial ribs in strength and rendering these nodulose at their junctions. The spaces inclosed between the axial riblets and the spiral threads are shallow rectangular pits. Suture strongly constricted. Periphery well rounded. The base is moderately long, openly umbilicated, well rounded, and marked like the spire; umbilicus marked by spiral threads and fine incremental lines on the outer half. Last whorl solute for about one-tenth of a turn with a decided angle behind the posterior angle of the aperture. Aperture pyriform; peristome simple, slightly expanded and very slightly reflected. Operculum thin, corneous, with paucispiral submarginal nucleus, the outside covered with a rather strong, finely granular deposit.

I have figured two of the extreme color forms out of a lot of 93 specimens (U.S.N.M. No. 471941), each having a little more than 4 whorls. Of these, the dark-colored one measures: Length, 19 mm.;

greater diameter, 10.6 mm.; lesser diameter, 9.4 mm. The light one measures: Length, 17 mm.; greater diameter, 10.5 mm.; lesser diameter, 9.5 mm.

This species comes from Gonave Island. A hundred and two specimens yield the following data:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	18.2	10.8	8.8
Least	12.5	7.8	6.3
Average	16.0	9.4	8.0

U.S.N.M. No. 471942 contains 42 topotypes collected by Dr. W. L. Abbott on Gonave Island.

U.S.N.M. No. 471943 contains 6 specimens from Gonave Island.

U.S.N.M. No. 471944 contains 23 specimens collected by Eyerdam near Anse à Galets, Gonave Island.

U.S.N.M. No. 455360 contains 4 specimens collected by Eyerdam 1 mile northeast of Point-à-Raquette, Gonave Island.

U.S.N.M. No. 380243 contains 40 specimens collected by Eyerdam at La Source, Gonave Island.

U.S.N.M. No. 471945 contains 2,405 specimens collected by Orcutt on Gonave Island.

U.S.N.M. No. 380264 contains 11 specimens from Trou Louis, Gonave Island.

U.S.N.M. No. 380153 contains 3 specimens collected by Eyerdam under stones on the mountain above Point-à-Raquette.

U.S.N.M. No. 380192 contains 33 specimens collected by Eyerdam on the shore of the Saline, Gonave Island.

U.S.N.M. No. 380217 contains 6 specimens collected by Eyerdam near L'Abricots, Gonave Island.

CHONDROPOMA (CHONDROPOMA) SOLUM, new species

Plate 12, Figure 6

Shell elongate-conic, flesh-colored, with the early whorls brown, which gradually fades as the shell grows larger, disappearing finally in the suture of the turns. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are rather high between suture and summit, inflated, decidedly rounded, narrowly shouldered at the summit, and crossed by numerous slender, almost vertical, somewhat sinuous axial ribs, which render the summit finely denticulated. In addition to this sculpture, the whorls are marked by rather broad, low, feebly developed spiral threads, which are almost as wide as the spaces that separate them and which render the riblets slightly sinuous. Suture slightly channeled. Periphery of the last whorl decidedly inflated, strongly rounded. The base is short, strongly inflated, and strongly rounded and marked by the continuation of the axial riblets and spiral threads, which here are a little more distantly spaced than those on the spire; they are likewise stronger. This type of sculpture extends into the rather open umbilicus where the spiral sculpture becomes the prominent element. The last whorl is solute for about one-tenth of a turn. Aperture obliquely ovate. The peristome is simple, slightly expanded at the edge. The operculum is unknown.

The type (U.S.N.M. No. 471951), collected by Dr. W. L. Abbott on Catalina Island, Dominican Republic, has 4.3 whorls remaining and measures: Length, 13 mm.; greater diameter, 7.5 mm.; lesser diameter, 6.2 mm.

U.S.N.M. No. 471952 contains 22 topotypes from the same source.

The inflated, extremely rounded whorls will distinguish this from the other smooth-lipped Chondropomas.

CHONDROPOMA (CHONDROPOMA) CATALINENSE, new species

PLATE 12, FIGURE 2

Shell elongate-ovate, pale buff, with a zone of brown in the suture of the early turns; the later turns are marked by interrupted spiral bands of brown, which vary considerably in width and spacing. Nuclear whorls 2.2, well rounded, smooth, forming a rather slender apex. The postnuclear whorls are inflated, well rounded, almost appressed at the summit, and marked by slender, irregularly spaced and developed, sinuous, retractively slanting, sublamellar axial riblets. In addition to this, the whorls are marked by feeble, low, rounded, poorly indicated spiral threads, which are separated by mere impressed lines and which render the axial riblets wavy. The axial riblets extend prominently to the summit, which they denticulate. Suture oval and narrowly channeled. Periphery inflated, well rounded. The base is short, inflated, well rounded, moderately broadly umbilicated, and marked like the spire, but here, as well as in the umbilicus, the spiral threads increase in strength. The last whorl is solute for about one-sixth of a turn, with a decided keel at the posterior angle behind the peristome. Aperture oblique, ovate; peristome simple. The operculum is unknown.

The type (U.S.N.M. No. 471953) and 56 topotypes (U.S.N.M. No. 425513) were collected by Dr. W. L. Abbott on Catalina Island, Dominican Republic. The type has 3.5 whorls remaining and measures: Length, 12.3 mm.; greater diameter, 7 mm.; lesser diameter, 6.1 mm.

This species is related to *Chondropoma (Chondropoma) solum* but can readily be distinguished from this by its shorter form and less rounded whorls.

CHONDROPOMA (CHONDROPOMA) VANATTAE Pilsbry

Shell ovate, very pale brown, with irregular zones of a little darker brown, the latter disposed in a more or less axial manner; there are in addition to this interrupted pale brown bands in the channels between the spiral threads, of which the one near the summit is the most conspicuous. There is also an almost continuous band of brown a little inside of the outer termination of the umbilicus. The inside of the aperture shows these brown bands, which become somewhat intensified on the outer peristome. The summits of the nuclear whorls are dark reddish brown. Nuclear whorls 2, forming an almost truncated apex, smooth except for the last portion of the last turn, which is marked by a few slender axial threads. The postnuclear whorls are inflated, strongly rounded, and marked by retractively slanting axial riblets, which are about one-fourth as wide as the spaces that separate them on the early turns, and about half as wide on the last. These riblets become intensified at the summit into slender cusps. The spiral sculpture consists of low, rounded threads about as strong as the axial riblets, the junctions of the two forming feeble nodules, while the spaces enclosed between them are squarish pits. The surface of the last whorl is not unlike that of a piece of coarsely, openly woven cloth. Suture well impressed. The periphery of the last whorl is strongly rounded. The base is moderately long, inflated, strongly rounded, openly umbilicated, and marked by the continuations of the axial ribs and spiral threads equaling those on the spire or even a little stronger. The umbilical wall shows four spiral threads a little stronger than those on the rest of the base near the outer margin. The last whorl is solute for about one-twentieth of a turn. Aperture large, very broadly oval; peristome simple, narrowly expanded and slightly reflected, more so on the outer and basal lip than on the columellar and parietal wall; the latter may be adnate to or free from the preceding turn. Operculum paucispiral with almost subcentral nucleus, the outside covered with a thin deposit of fine calcareous granules which are absent at the margin.

This species ranges from Fonds Verettes, Haiti, south to Maniel Viejo, Dominican Republic. I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) VANATTAE

Last whorl solute	vanattae
Last whorl not solute	verettense

CHONDROPOMA (CHONDROPOMA) VANATTAE VANATTAE Pilsbry

PLATE 12, FIGURE 3

1933. *Chondropoma vanattae* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 124, pl. 6, figs. 8, 9.

Dr. Pilsbry's type (Acad. Nat. Sci. Phila. No. 160979) and a specimen in our collection (U.S.N.M. No. 426047) were collected by Daniel

C. Pease at his station 85 on Sr. Del Monte's plantation in a verdant gully near Salvation at about 3,000 feet elevation.

U.S.N.M. No. 472032 contains 10 specimens collected by Dr. W. L. Abbott 2 miles north of Maniel Viejo in the Sierra de Bahoruco Province, Dominican Republic, at an elevation of 3,500 feet, which appear to be identical with these. I have figured one of the latter (U.S.N.M. No. 472031), which has 6.6 whorls remaining, having probably lost the first nuclear turn, and measures: Length, 12.3 mm.; greater diameter, 7.2 mm.; lesser diameter, 5.7 mm.

This subspecies is easily distinguished from *Chondropoma (Chondropoma) vanattae verettense* by the fact that the last whorl is solute for about one-fifteenth of a turn.

CHONDROPOMA (CHONDROPOMA) VANATTAE VERETTENSE, new subspecies

Plate 12, Figure 5

This race was collected by Dr. W. L. Abbott at Fonds Verettes southwest of the western end of Lake Enriquillo, Haiti.

The type, U.S.N.M. No. 472033, has 5.5 whorls remaining, having probably lost the first nuclear turn, and measures: Length, 13 mm.; greater diameter, 7.3 mm.; lesser diameter, 5.9 mm.

This race is easily distinguished from *C. (C.) v. vanattae* by the fact that the last whorl is adnate to the preceding turn on the parietal wall.

U.S.N.M. No. 472034 contains 31 topotypes.

U.S.N.M. No. 402543 contains 1 specimen collected by C. R. Orcutt south of Fonds Verettes on the trail to Bodarie on the north slope.

Subfamily RHYTIDOPOMINAE Henderson and Bartsch

1920. Rhytidopominae HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, pp. 64–65.

Shell ranging from elongate-conic through ovate to turbinate. Axial ribs are always present; they may vary from mere threads to lamellae; they may terminate simply; they may become expanded at the summit into broad denticles or even fused there into hollow cusps or tufts. Spiral threads may be present on spire, base, and umbilicus or in the umbilicus only, or they may be even entirely absent. The last whorl may be adnate or solute and the umbilicus may be open or closed. The operculum has as a basis a chondroid plate composed of several whorls, the outer surface of which bears numerous retractively slanting, raised lamellae, which vary greatly in strength in the different genera. They may extend completely across each whorl or they may cover only a part of it, as in *Opisthosiphon.* These lamellae may or may not be fused on their inner and outer termination, and the free edge may be fused to form a pseudolamella. They may be rather distantly spaced or they may be almost fused at their edge. Special devices for breathing when the operculum closes the shell may be present or absent. They show an enormous range of specialized development, which will be discussed under each genus.

Type genus: *Rhytidopoma* Sykes.

KEY TO THE HISPANIOLAN GENERA OF THE SUBFAMILY RHYTIDOPOMINAE

- Pseudolamella[13] absent.
  - Peristome single.
    - Shell elongate-conic.
      - Spiral sculpture absent........................ **Parachondrisca**
      - Spiral sculpture not absent........................ **Crossepoma**
    - Shell ovate .... **Hispanipoma**
  - Peristome double.
    - Intercostal spaces inconspicuously spirally striate...... **Orcuttipoma**
    - Intercostal spaces not inconspicuously spirally striate, but with spiral threads.
      - Shell elongate-conic............................ **Parachondrops**
      - Shell elongate-ovate.
        - Axial ribs vertebrated............................ **Colonina**
        - Axial ribs not vertebrated..................... **Haitipoma**
- Pseudolamella present.
  - Peristome simple.
    - Shell ovoid .... **Kisslingia**
    - Shell elongate-conic.. **Klattea**
  - Peristome double.
    - Axial and spiral sculpture covering entire surface............ **Licina**
    - Axial and spiral sculpture not covering entire surface.
      - Outer peristome very broadly expanded.............. **Sallepoma**
      - Outer peristome not very broadly expanded...... **Clydonopoma**

Genus PARACHONDRISCA Henderson and Bartsch

1920. *Parachondrisca* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, pp. 65, 66.

Shell elongate-conic, marked by axial riblets only, which are fused into tufts at the summit. No trace of spiral sculpture, even on the umbilical wall, is present. Operculum with rather distantly spaced, retractively curved, strongly elevated, thin lamellae, which are fused on the inner edge of the turns. They are most elevated at the inner edge of the whorls and decrease outwardly, terminating before reaching the outer margin of the chondroid basal plate.

Type species: *Cyclostoma umbricola* Weinland = *Parachondrisca umbricola* (Weinland).

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[13] The term *pseudolamella* is here applied to the flat plate formed by the expansion and fusion of the retractively curved opercular riblets on their outer edge, which produce an appearance simulating the decidedly reflected lamella of certain annularine mollusks. The latter, however, have the lamella free and not joined to the basal chondroid plate by riblets. The *pseudolamella* may cover the entire ribbed surface of the opercular whorls or be restricted to the inner margin, in which case the distal portion shows the ribbing only. Pseudolamellid Rhytidopominae seem restricted to Hispaniola.

PARACHONDRISCA UMBRICOLA (Weinland)

Shell small, elongate-conic, brown, unicolor or with rather broad spiral bands of darker brown; interior of aperture pale brown, with the brown bands when present showing conspicuously. The expanded peristome is flesh-colored. Nuclear whorls 1.5, forming a rather blunt apex, strongly rounded, smooth, except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls strongly rounded, marked by slender, rather distantly spaced, slightly retractively slanting axial ribs. At irregular intervals these riblets become expanded at the summit to form a broad, almost blisterlike denticle, which is always pale in color. Suture strongly constricted, almost channeled. Periphery strongly rounded. Base short, strongly rounded, openly umbilicated, and marked by the continuation of the axial riblets, which extend into the umbilicus where some at irregular intervals become expanded into broad lamellae. These expanded elements are usually also stronger on the upper portion of the last whorl which they render slightly varicid. There is no spiral sculpture present, even on the umbilicus. Last whorl solute for about one-tenth of a turn, the solute portion conspicuously angulated behind the posterior angle of the aperture. Aperture subcircular; peristome double, the outer broadly expanded at the posterior angle where it forms a conspicuous auricle, while on the inner lip it is about half as wide as at the posterior angle; on the middle of the parietal wall and the outer lip it does not extend beyond the inner peristome, which is slightly exserted and reflected. Operculum typically parachondriscoid.

KEY TO THE HISPANIOLAN SUBSPECIES OF PARACHONDRISCA UMBRICOLA

Axial ribs fine and closely spaced............................ **cayemitensis**
Axial ribs not fine or closely spaced............................**umbricola**

PARACHONDRISCA UMBRICOLA CAYEMITENSIS, new subspecies

PLATE 13, FIGURE 4

This subspecies comes from Grande Cayemite, a large island lying off the north coast of the south peninsula, Haiti. Its larger size and finer and more closely spaced ribs, of which there are 144 on the last whorl in the type, as well as the less strong tufting at the summit, will easily distinguish it from typical *P. u. umbricola.*

The type (U.S.N.M. No. 503997), collected by Eyerdam, has 8.4 whorls and measures: Length, 13.5 mm.; greater diameter, 6.1 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 380314 contains 208 topotypes from the same source.

PARACHONDRISCA UMBRICOLA UMBRICOLA (Weinland)

PLATE 13, FIGURE 7

1862. *Cyclostoma umbricola* WEINLAND, Malakozool. Blätter, vol. 9, p. 88.
1865. *Tudora umbricola* PFEIFFER, Monographia pneumonopomorum viventium, Suppl. 2, p. 137.
1920. *Parachondria (Parachondrisca) umbricola* HENDERSON and BARTSCH, Proc. U.S. Nat. Mus., vol. 58, p. 66.

The typical subspecies ranges from Pestel, on the north coast of the southern peninsula, west to Anse du Clerc. Its much smaller size, less developed tufting at the summit, and much stronger and more distantly spaced axial ribs will readily distinguish it from *P. u. cayemitensis.*

The specimen described and figured is one of 34 (U.S.N.M. No. 355166) collected by John B. Henderson and the author at the type locality, Jérémie, Haiti. It has 8.4 whorls and measures: Length, 10.8 mm.; greater diameter, 4.2 mm.; lesser diameter, 3.3 mm. There are 70 axial riblets on the last whorl.

A hundred specimens yield the following comparative measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	12.9	5.7	4.9
Least	7.0	3.4	2.6
Average	9.7	4.4	3.5

U.S.N.M. No. 425689 contains 3 cotypes received from Weinland.

U.S.N.M. No. 380323 contains 1 specimen collected by Eyerdam at Pestel.

U.S.N.M. No. 355179 contains 4 specimens collected by Henderson and Bartsch at Corail.

U.S.N.M. No. 355176 contains 4 specimens collected by Henderson and Bartsch on top of the range at Roseau.

U.S.N.M. No. 355175 contains 29 specimens collected by Henderson and Bartsch at Roseau.

U.S.N.M. No. 355174 contains 24 specimens collected by Henderson and Bartsch at Abricots, west of Jérémie.

U.S.N.M. No. 355177 contains 14 specimens collected by Henderson and Bartsch at Jérémie.

U.S.N.M. No. 162956 contains 32 specimens collected by Henderson and Simpson at Jérémie.

U.S.N.M. No. 355168 contains 1 specimen collected by Henderson and Bartsch on the second ridge west of Jérémie.

U.S.N.M. No. 355169 contains 5 specimens collected by Henderson and Bartsch on the shore cliffs at Jérémie.

U.S.N.M. No. 355171 contains 27 specimens collected by Henderson and Bartsch at Debarras.

U.S.N.M. No. 355172 contains 4 specimens collected by Henderson and Bartsch 5 miles west of Jérémie.

U.S.N.M. No. 355173 contains 10 specimens collected by Henderson and Bartsch at Anse à Cochon.

U.S.N.M. No. 403057 contains 17 specimens collected by Orcutt near the sea west of Jérémie.

U.S.N.M. No. 403074 contains 12 specimens collected by Orcutt south of the road west of Jérémie.

U.S.N.M. No. 402911 contains 155 specimens collected by Orcutt east of Trou Bonbon.

U.S.N.M. No. 402653 contains 66 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

U.S.N.M. No. 355178 contains 45 specimens collected by Dr. W. L. Abbott at Moron.

CROSSEPOMA, new genus

Shell elongate-conic, marked by axial ribs that fuse at the summit to form tufts. Spiral sculpture present in the form of threads or indicated by feeble nodules on the axial ribs, always stronger on the umbilical wall than on the spire. Umbilicus open. Aperture oval; peristome simple. Operculum with a heavy calcareous deposit, which is marked by retractively curved axial riblets, leaving, however, a space between the turns showing the basal chondroid plate.

Crossepoma is easily distinguished from *Parachondrella* by the strong tufting of the axial ribs at the summit. In *Parachondrella* they remain distinct.

Type species: *Cyclostoma emilianum* Weinland = *Crossepoma emilianum* (Weinland).

KEY TO THE SPECIES OF CROSSEPOMA

- Axial ribs distantly spaced.................................. hendersoni
- Axial ribs closely spaced.
  - Axial ribs broad.
    - Shell large, height more than 15 mm ....emilianum
    - Shell small, height less than 12 mm.......................australe
  - Axial ribs not broad.. jacmelense

CROSSEPOMA HENDERSONI, new species

Plate 13, Figure 9

Shell elongate-conic, pale buff, with interrupted spiral bands of brown, of which six are present between summit and periphery. A very broad seventh spiral band is immediately below the periphery and three smaller ones are anterior to this on the base. The columella also is pale brown. All these brown markings show within the aperture. There is also a small brown spot at the beginning of the nuclear turns. Nuclear whorls 1.5, inflated, well rounded, microscopically granulose. The terminal portion of the nuclear whorls gradually passes into the postnuclear sculpture. The postnuclear whorls are moderately well rounded. The early ones less so than the later. They are crossed by strong sublamellar axial ribs, several of which may become fused into hollow cusps at the summit, or the individual ribs may become thus expanded. Of these axial ribs, 84 are present on the last turn. The spiral sculpture is indicated by feeble nodulations, which are stronger on the early turns. The intercostal spaces do not show spiral threads. Suture moderately contricted. Periphery inflated, well rounded. Base moderately long, narrowly openly umbilicated, and marked by the continuation of the axial ribs and on the outer half of the umbilical wall by four spiral cords, which grow consecutively stronger from the outermost inward. Aperture oval, slightly angulated at the posterior angle; peristome simple. Operculum typically crossepomid.

The type (U.S.N.M. No. 380353) was collected near Anse à Veau, Haiti, by Eyerdam. It has 5 whorls remaining and measures: Height, 16.1 mm.; greater diameter, 7.3 mm.; lesser diameter, 6.5 mm.

Additional specimens in our collection show that the species ranges from Anse à Veau along the coast westward to Trou Rousselin at the western end of the peninsula.

The species is easily distinguished from its neighbor, *C. emilianum,* by its much more distantly spaced axial ribs.

U.S.N.M. No. 503998 contains 1 specimen collected by Henderson and Bartsch at Roseau.

U.S.N.M. No. 383227 contains 4 specimens collected by Orcutt at Jérémie.

U.S.N.M. No. 401730 contains 139 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

U.S.N.M. No. 404079 contains 2 specimens collected by Orcutt on a limestone cliff near the shore west of Trou Rousselin.

CROSSEPOMA EMILIANUM (Weinland)

Shell elongate-conic, varying in ground color from pale buff to brown, marked by interrupted, or sometimes solid, spiral bands of brown; the interior of the aperture may vary from pale buff to pale brown with the peristome usually soiled white. The nuclear whorls form a blunt apex that consists of 2.5 turns, which are strongly rounded and smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls well rounded, marked by closely spaced, retractively slanting axial riblets, which are usually a little wider than the spaces that separate them. The axial riblets are either expanded or several of them are gathered into hollow tufts at the summit. The spiral sculpture consists of obsolete ill-defined nodules, which render the axial riblets slightly wavy. Suture well constricted, rendered wavy by the tufts at the summit of the turns. Periphery strongly rounded. Base short, openly narrowly umbilicated, well rounded, and marked by the continuation of the axial riblets within the umbilicus and by moderately strong spiral threads. Aperture oval; peristome simple, slightly reflected. Operculum with the nucleus halfway between submarginal and subcentral, marked by slender, retractively slanting, ill-defined lamellae, which are fused on their inner and outer edges, which are slightly elevated, and which terminate about two-fifths from the outer margin of the chondroid basal plate of the turns, leaving a decided unribbed space between the turns.

This species appears to be distributed over the coastal region of southwestern Haiti. I am recognizing three subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF CROSSEPOMA EMILIANUM

Shell stout .... gibbosum
Shell not stout.
  Tufts at the summit very strong.................................. emilianum
  Tufts at the summit not very strong............................ insulanum

CROSSEPOMA EMILIANUM GIBBOSUM, new subspecies

Plate 13, Figure 8

This subspecies appears confined to the coast of the south side of the south peninsula where it extends from Damassins to Port Salut.

The type (U.S.N.M. No. 536863) was collected by C. R. Orcutt on a hill north of Coteaux east of the river. This subspecies is easily differentiated from the other two by its much more gibbose form and by having the axial ribs finer and less expanded at their outer edge. In the type, which has 4.8 whorls remaining, there are 167 ribs upon the last turn and 3 obsolete spiral cords on the outer edge of the umbilical wall. The type measures: Height, 17.0 mm.; greater diameter, 10.0 mm.; lesser diameter, 8.0 mm.

U.S.N.M. No. 404032 contains 83 topotypes from the same source.

U.S.N.M. No. 404900 contains 7 specimens collected by Orcutt at Coteaux

U.S.N.M. No. 404826 contains 21 specimens collected by Orcutt west of Carpentier.

U.S.N.M. No. 404096 contains 3 specimens collected by Orcutt on the first hill east of Damassins.

U.S.N.M. No. 404127 contains 7 specimens collected by Orcutt on a hillside south of the road west of Coteaux.

U.S.N.M. No. 403952 contains 6 specimens collected by Orcutt east of Rivière de l'Anse à Drick.

U.S.N.M. No. 403984 contains 14 specimens collected by Orcutt at Point Sable west of Port Salut.

U.S.N.M. No. 404761 contains 2 specimens collected by Orcutt on a hill north of Port à Piment.

U.S.N.M. No. 402331 contains 91 specimens collected by Orcutt on the road between L'Acul and Port Salut.

U.S.N.M. No. 403740 contains 28 specimens collected by Orcutt at Port Salut.

U.S.N.M. No. 402121 contains 26 specimens collected by Orcutt on the north side of the Rivière du Port Salut near the mouth.

U.S.N.M. No. 402159 contains 1 specimen collected at Acuzoo Village south of the Rivière de l'Acul.

U.S.N.M. No. 403962 contains 4 specimens collected at Anse à Drick.

U.S.N.M. No. 404784 contains 1 specimen collected by Orcutt 1 mile west of Point Sable.

CROSSEPOMA EMILIANUM EMILIANUM (Weinland)

Plate 13, Figure 3

1862. *Cyclostoma emilianum* Weinland, Malak. Blätter, vol. 9, p. 87.
1862. *Chondropoma emilianum* Pfeiffer, Malak. Blätter, vol. 9, p. 94.
1920. *Parachondria (Parachondria) emilianum* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 66.

This subspecies was collected by Henderson and me at various stations along the coast between Jérémie and Anse du Clerc on the northwest coast of the south peninsula. Its slender form will readily distinguish it from *Crossepoma emilianum gibbosum*, and its much more expanded ribs and stronger tufting at the summit and less gibbose whorls differentiate it from *C. e. insulanum*.

The specimen figured (U.S.N.M. No. 124402) is one of two cotypes received from Weinland, that is, a paratype. It has 5 whorls remaining and 89 ribs on the last whorl and 4 moderately strong spiral threads on the outer portion of the umbilical wall and measures: Height, 15.2 mm.; greater diameter, 7.4 mm.; lesser diameter, 6.6 mm.

One hundred additional specimens of this subspecies, also collected from Jérémie or the adjacent territory, yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	16.3	8.2	6.9
Least	11.3	6.1	4.9
Average	13.4	7.1	5.8

U.S.N.M. No. 425691 contains another specimen received by the Senckenbergische Museum from Weinland.

U.S.N.M. No. 355348 contains 4 specimens collected by Henderson and Bartsch at Jérémie.

U.S.N.M. No. 355350 contains 117 specimens collected by Henderson and Bartsch on the sea cliffs west of Jérémie.

U.S.N.M. No. 355352 contains 1 specimen collected 5 miles west of Jérémie by Henderson and Bartsch.

U.S.N.M. No. 355353 contains 143 specimens collected by Henderson and Bartsch at Anse à Cochon.

U.S.N.M. No. 403056 contains 84 specimens collected by Orcutt near the sea west of Jérémie.

U.S.N.M. No. 402924 contains 4 specimens collected by Orcutt at Trou Bonbon.

U.S.N.M. No. 425374 contains 1 specimen collected by Orcutt between Anse du Clerc and Trou Bonbon.

CROSSEPOMA EMILIANUM INSULANUM, new subspecies

Plate 13, Figure 10

This subspecies comes from Grande Cayemite Island off the north coast of the south peninsula. It most nearly resembles the typical race but is readily distinguished from that by its more inflated whorls and less strongly developed ribs, which are also less wide.

The type (U.S.N.M. No. 425508) has 5.3 whorls remaining and bears 121 axial ribs on the last turn and 4 weak cords at the outer edge of the umbilicus. It measures: Height, 16.9 mm.; greater diameter, 8.0 mm.; lesser diameter, 7.2 mm.

CROSSEPOMA AUSTRALE, new species

Shell rather small, buff, unicolor, or with faint indications of interrupted spiral bands of brown. In the typical race there is also a strongly interrupted spiral band of brown on the base a little below the periphery. Nuclear whorls 1.5, well rounded, microscopically granulose. Postnuclear whorls also well rounded and marked by slightly retractively curved axial ribs, which are gathered into tufts at the summit. On the early whorls spiral threads are indicated by rather strong nodules on the axial ribs; these are less apparent, although more numerous, on the later turns. Suture well constricted. Periphery inflated, strongly rounded. Base rather openly umbilicated and marked by the continuation of the axial ribs and several strong spiral cords on the outer edge of the umbilicus. Aperture broadly oval, slightly angulated at the posterior angle; peristome simple. Operculum typically crossepomid.

The species is distributed over portions of the western part of the south peninsula of Haiti and the Île à Vache.

It breaks up into two subspecies which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF CROSSEPOMA AUSTRALE

Umbilical wall with 3 strong and an outer feeble spiral thread.....vachense
Umbilical wall with 2 strong and an outer feeble spiral thread...... australe

CROSSEPOMA AUSTRALE VACHENSE, new subspecies

Plate 13, Figure 6

This subspecies comes from the Île à Vache. It has finer ribs and feeble tufting thereof, as well as the possession of three strong spiral threads and a feeble cord on the outer portion of the umbilical wall, which readily distinguish it from the typical race.

The type, U.S.N.M. No. 442849, has 103 axial ribs on the last whorl and measures: Height, 10.3 mm.; greater diameter, 6.0 mm.; lesser diameter, 4.7 mm.

CROSSEPOMA AUSTRALE AUSTRALE, new subspecies

Plate 13, Figure 5

This subspecies ranges along the south coast of the south peninsula from Torbeck to Aquin, Haiti. It differs from *C. a. vachense* in having the axial ribs much stronger and the tufts at the summit much more strongly developed. There are also here only one feeble and two strong spiral threads on the outer portion of the umbilical wall.

The type (U.S.N.M. No. 504027) was collected by C. R. Orcutt between Vieux Bourg and Baie des Flamands. It has 4.3 whorls remaining, the last of which bears 110 axial ribs, and measures: Height, 11.0 mm.; greater diameter, 6.2 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 402457 contains 5 topotypes from the same source.

U.S.N.M. No. 403650 contains 1 specimen collected by Orcutt at Torbeck.

U.S.N.M. No. 402796 contains 9 specimens collected by Orcutt at St. Louis.

U.S.N.M. No. 402827 contains 9 specimens collected by Orcutt east of Aquin.

U.S.N.M. No. 402679 contains 6 specimens collected by Orcutt east of Morne Rouge.

U.S.N.M. No. 402696 contains 19 specimens collected by Orcutt at Morne Rouge.

U.S.N.M. No. 402736 contains 2 specimens collected by Orcutt south of Morne Rouge.

U.S.N.M. No. 403463 contains 1 specimen collected by Orcutt on the mountains east of Morne Rouge.

CROSSEPOMA JACMELENSE, new species

Shell varying from cylindroconic to broadly elongate-conic, marked by retractively curved axial riblets, which are gathered into prominent tufts at the summit. The spiral sculpture is indicated by feeble nodules on the axial ribs, which are stronger on the early turns than on the rest. Suture well constricted. Periphery well rounded. Base openly umbilicated and marked by the continuation of the axial ribs and on the umbilical wall by spiral threads. The last whorl is solute to a varying degree. Aperture oval, slightly angulated at the posterior angle; peristome simple and slightly expanded and reflected. Operculum with strong, rather distantly spaced, retractively curved, lamellar axial ribs, which are fused on the inner and outer terminations. These ribs do not extend to the outer limit of the turns of the basal chondroid plate but leave a space between them. The species appears restricted to the south coast of the south peninsula of Haiti.

I am recognizing two subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF CROSSEPOMA JACMELENSE

Shell cylindroconic	jacmelense
Shell broadly elongate-conic	cayesense

CROSSEPOMA JACMELENSE JACMELENSE, new subspecies

PLATE 14, FIGURE 14

This subspecies comes from Jacmel, Haiti, on the south coast of the island across the south peninsula from Port-au-Prince.

The type (U.S.N.M. No. 355354) has lost the early whorls; the 4.4 remaining measure: Height, 14.8 mm.; greater diameter, 7.0 mm.; lesser diameter, 6.0 mm. The last whorl bears 117 axial riblets and has four spiral threads on the umbilical wall.

This subspecies is easily distinguished from *Crossepoma jacmelense cayesense* by its cylindroconic shape, by having the axial ribs more distantly spaced, and by having the last whorl much more solute and the peristome less expanded.

U.S.N.M. No. 162928 contains 39 topotypes, 20 of which yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	14.2	7.2	5.9
Least	10.1	5.8	4.7
Average	12.0	6.3	5.2

CROSSEPOMA JACMELENSE CAYESENSE, new subspecies

PLATE 14, FIGURE 15

This subspecies ranges from Port à Piment, Haiti, eastward along the south coast to Aquin. We also have a number of dead specimens from Île à Vache, which I am unable to differentiate from the main-island form.

The type (U.S.N.M. No. 504028), collected by C.R. Orcutt from near Les Cayes, is a complete specimen having 7.7 whorls and 192 axial ribs on the last turn and 4 spiral threads in the umbilicus. It measures: Height, 19.0 mm.; greater diameter, 9.3 mm.; lesser diameter, 7.3 mm.

It differs markedly from *Crossepoma jacmelense jacmelense* in being much broader and in having a much larger number of ribs.

U.S.N.M. No. 403344 contains 1,331 topotypes from the same source.

U.S.N.M. No. 401756 contains 102 specimens collected by Orcutt on the road from Les Cayes to Laborde.

U.S.N.M. No. 404130 contains 23 specimens collected by Orcutt on a hill near and west of Metesignix, east of Port à Piment.

U.S.N.M. 404724 contains 8 specimens collected by Orcutt in the ravine west of Metesignix.

U.S.N.M. No. 403138 contains 183 specimens collected by Orcutt at Aquin.

U.S.N.M. No. 402479 contains 70 specimens collected by Orcutt between Vieux Bourg and Baie des Flamands.

U.S.N.M. No. 404011 contains 9 specimens collected by Orcutt on the road between Torbeck and L'Acul.

U.S.N.M. No. 401932 contains 7 specimens collected by Orcutt on the road between Les Cayes and Torbeck.

U.S.N.M. No. 401783 contains 27 specimens collected by Orcutt at Les Cayes.

HISPANIPOMA, new genus

Shell ovate, marked by axial riblets and spiral threads whose junction forms weak nodules. Some of the axial ribs fuse to form tufts at the summit; others merely become thickened into cusps. Base openly umbilicated, the umbilical wall always marked by spiral cords a little stronger than those of the spire. Aperture oval; peristome simple. Operculum heavily calcified with strong, retractively curved ribs, which do not extend to the outer edge of the whorls of the basal chondroid plate but leave a small channel between the turns.

Type species: *Cyclostoma quaternata* Lamarck = *Hispanipoma quaternatum* (Lamarck).

HISPANIPOMA QUATERNATUM (Lamarck)

Shell elongate-ovate, varying decidedly in size in the different subspecies. The color ranges from unicolor flesh-color to pale rose; the interior of the aperture varies with the color of the exterior. The nuclear whorls form a blunt apex consisting of 1.5 turns, which are strongly rounded and microscopically granulose, with the last portion of the last turn showing indications of the postnuclear sculpture. The postnuclear whorls are well rounded, narrowly shouldered at the summit, marked by numerous, rather closely spaced, rounded, somewhat retractively slanting axial riblets, which vary in strength and spacing, heavier and more distantly spaced ones being usually succeeded by narrower and more closely spaced series; the spaces separating them are rarely as wide as the riblets. These riblets terminate either individually in little expanded cusps, or several of them become fused to form a conspicuous hollow denticle. The spiral sculpture consists of numerous slender, weakly developed threads, which are best seen in the intercostal spaces and which render their junction with the axial ribs weakly nodulose. Suture moderately well constricted. Periphery inflated and well rounded. Base moderately long, inflated, strongly rounded, narrowly openly umbilicated, and marked by the continuation of the axial and spiral threads. The ribs and spiral threads are also present on the umbilical wall. The last whorl is solute for a fraction of a turn. Aperture oval; peristome simple, slightly auriculated at the posterior angle, and a little more broadly expanded on the inner and basal lip than on the rest. Operculum as described in the generic definition.

This species appears confined to Haiti. Representatives of it are known from the north coast of the island, the Cul-de-Sac region, and the island of Gonave.

I am recognizing five subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF HISPANIPOMA QUATERNATUM

Tufts at summit of whorls very closely approximated.......... **quaternatum**
Tufts at summit of whorls not very closely approximated.
  Denticles at summit very strong.
    Suture strongly channeled.......................... **dentilobatum**
    Suture not strongly channeled.......................... **monticolum**
  Denticles at summit not very strong.
    Shell elongate-ovate.......................... **cabaretense**
    Shell ovate.......................... **charmettense**

HISPANIPOMA QUATERNATUM QUATERNATUM (Lamarck)

Plate 14, Figure 13

1822. *Cyclostoma quaternata* Lamarck, Histoire naturelle des animaux sans vertèbres, vol. 6, pt. 2, p. 147.
1842. *Cyclostoma quaternata* Delessert, Recueil de coquilles . . ., pl. 29, fig. 3.
1847. *Cyclostoma quaternata* Sowerby, Thesaurus conchyliorum, p. 149, pl. 28, figs. 178, 179.
1848. *Cyclostoma quaternata* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, vol. 1, sect. 19, p. 81, pl. 10, figs. 12, 13.
1850. *Cistula quaternata* Gray, Nomenclature of molluscous animals and shells in the collection of the British Museum, p. 59.
1851. *Tudora quaternata* Pfeiffer, Zeitschr. Malak., vol. 8, p. 167.
1863. *Chondropoma quaternata* Reeve, Conchologia iconica, pl. 8, fig. 60.
1920. *Parachondria (Parachondria) quaternata* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 66.

This subspecies ranges from the Peterborough Mountains north of Gonaïves, south through St. Marc through the Cul-de-Sac region to Fond Parisien and Fonds Verettes.

It is the largest subspecies, usually with an orange tinge. Here, too, the tufts at the summit are more inclined to be appressed to the preceding turn than in the other races.

The specimen figured (U.S.N.M. No. 355316) is one of 70 that Henderson and I collected at Trou Caïman near Thomazeau. It has a little over 4 whorls remaining and measures: Height, 19.7 mm.; greater diameter, 11.0 mm.; lesser diameter, 9.8 mm. It has 150 axial ribs on the last whorl and 16 spiral threads between the summit and the periphery of the same whorl. The axial and spiral sculpture on the base of the last whorl in this subspecies is usually feebly developed, sometimes obsolete, and there are five threads on the umbilical wall. The strength of the spiral sculpture on the base, however, is variable in individuals even when gathered from the same place.

Measurements of 100 specimens yield the following information:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	21.2	11.1	10.0
Least	11.9	7.1	6.6
Average	16.3	9.1	8.4

The large size and brighter coloration will readily distinguish this subspecies from the rest.

U.S.N.M. No. 379974 contains 22 specimens collected by Eyerdam at Morne à Cabrits.

U.S.N.M. No. 355309 contains 4 specimens collected by Herman Rolle at Port-au-Prince.

U.S.N.M. No. 425386 contains 48 specimens collected by Orcutt at Morne à Cabrits.

U.S.N.M. No. 355314 contains 2 specimens collected by Henderson and Bartsch in the Cul-de-Sac north of Port-au-Prince.

U.S.N.M. No. 380436 contains 3 specimens collected by Eyerdam in the plain, Cul-de-Sac.

U.S.N.M. No. 162951 contains 24 specimens collected by Henderson and Simpson at Thomazeau.

U.S.N.M. No. 403099 contains 492 specimens collected at Fort Dimanche near Port-au-Prince.

U.S.N.M. No. 355307 contains 231 specimens collected by Henderson and Bartsch at Port-au-Prince.

U.S.N.M. No. 403242 contains 11 specimens collected by Orcutt on the road to Damien.

U.S.N.M. No. 403249 contains 13 specimens collected by Orcutt near Pont Bedette.

U.S.N.M. No. 402436 contains 17 specimens collected by Orcutt near the Hasco Bridge, Cul-de-Sac River.

U.S.N.M. No. 403394 contains 24 specimens collected by Orcutt to the east of the Haitian American Sugar Co. near Port-au-Prince.

U.S.N.M. No. 355319 contains 3 specimens collected by Henderson on the plain east of Thomazeau.

U.S.N.M. No. 401908 contains 3 specimens collected by Orcutt east of A. Triche's house, Rue 4, Port-au-Prince.

U.S.N.M. No. 380466 contains 15 specimens collected by Eyerdam 1 mile northeast of Port-au-Prince.

U.S.N.M. No. 362391 contains 5 specimens collected by A. E. Vinson in the Cul-de-Sac Plain.

U.S.N.M. No. 355313 contains 5 specimens collected by J. J. Brown at Port-au-Prince.

U.S.N.M. No 162952 contains 66 specimens collected by Henderson and Simpson at Port-au-Prince.

U.S.N.M. No. 355305 contains 71 specimens collected by Henderson at Port-au-Prince.

U.S.N.M. No. 355321 contains 4 specimens collected by Henderson on the shore of Lake Assua.

U.S.N.M. No. 162954 contains 3 specimens collected by Henderson and Simpson at Thomazeau.

U.S.N.M. No. 162955 contains 10 specimens collected by Henderson and Simpson at Port-au-Prince.

U.S.N.M. No. 355320 contains 2 specimens collected by Henderson and Bartsch at Glore.

U.S.N.M. No. 355315 contains 26 specimens collected by Henderson at Port-au-Prince.

U.S.N.M. No. 355318 contains 2 specimens collected by Henderson at Morne à Cabrits.

U.S.N.M. No. 355325 contains 1 specimen collected by W. C. Woodring 2 miles west of Gautier.

U.S.N.M. No. 393241 contains 16 specimens collected by Bartsch 18 miles north of Port-au-Prince.

U.S.N.M. No. 393776 contains 7 specimens collected by Bartsch 10 miles north of Gonaïves.

U.S.N.M. No. 393788 contains 6 specimens collected by Bartsch 15 miles north of Gonaïves.

U.S.N.M. No. 393803 contains 7 specimens collected by Bartsch on the Peterborough Mountain north of Ennery.

U.S.N.M. No. 355323 contains 90 specimens collected by Henderson at Fond Parisien.

U.S.N.M. No. 503999 contains 110 specimens collected by Henderson at Fonds Verettes.

HISPANIPOMA QUATERNATUM DENTILOBATUM (Weinland)

PLATE 14, FIGURE 1

1880. *Cyclostomus dentilobatus* WEINLAND, Jahrb. deutschen malak. Ges., vol. 7, p. 344, in part.

1920. *Parachondria (Parachondria) gonavicola* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 80.

This race we have from various stations on the Island of Gonave, Haiti. Henderson and I failed to recognize its identity with the shell we described as *gonavicola.* It is a stout race, smaller than typical *quaternatum.*

The specimen figured (U.S.N.M. No. 504000) has 180 axial ribs on the last turn. It has 6 spiral threads on the first and 10 on the second whorl, while on the last they are too obsolete to be counted. There are 12 fairly strongly developed cords on the umbilical wall. The specimen figured is the type of *gonavicola.* It has a little over 3 whorls and measures: Height, 14.9 mm.; greater diameter, 9.5 mm.; lesser diameter, 7.9 mm.

Forty-nine additional specimens yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	16.5	10.4	8.2
Least	10.9	6.9	5.7
Average	13.7	8.3	7.1

U.S.N.M. No. 314944 contains 1 specimen collected by Dr. W. L. Abbott on Gonave Island.

U.S.N.M. No. 355329 contains 32 specimens collected by Dr. W. L. Abbott on Gonave Island.

U.S.N.M. No. 355330 contains 17 specimens collected by Dr. W. L. Abbott near Anse à Galets.

U.S.N.M. No. 381015 contains 1 specimen collected by Eyerdam 1 mile northeast of Point-à-Raquette.

U.S.N.M. No. 425368 contains 1 specimen collected by Eyerdam on Gonave Island.

HISPANIPOMA QUATERNATUM MONTICOLUM, new subspecies

Plate 14, Figure 3

This subspecies Henderson and I collected at Pétionville, and C. R. Orcutt gathered specimens at "Mount Traverse," which is somewhere between Fonds Verettes and Saltrou, probably on the eastern side of the mountain.

The type (U.S.N.M. No. 355338) comes from Pétionville. It has a little over 4 whorls remaining and measures: Height, 14.5 mm.; greater diameter, 7.5 mm.; lesser diameter, 7.2 mm. It has 137 axial ribs on the last turn and 11 spiral threads between the summit and the periphery on the last turn, and 12 on the base and 15 on the umbilical wall. The latter are less strong than those on the base.

This race is readily distinguished from the other subspecies by its much stronger spiral sculpture.

Ten topotypes (U.S.N.M. No. 355339), collected at the same time, yield the following additional measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	15.1	8.0	7.5
Least	10.0	6.1	5.4
Average	12.6	7.2	6.6

U.S.N.M. No. 402075 contains 18 specimens collected by Orcutt at Mount Traverse between Fonds Verettes and Saltrou.

HISPANIPOMA QUATERNATUM CABARETENSE, new subspecies

Plate 14, Figure 2

This subspecies was collected by Mr. and Mrs. E. C. Leonard on the summit of Morne Rouge, Cabaret, Moustique Bay, on the northwest coast of the island. It is a pale race of elongate-ovate outline with rather strong sculpture and very conspicuous tufts at the summit.

In the type (U.S.N.M. No. 504018), which has 4 whorls remaining, there are 103 axial riblets on the last whorl, 11 spiral threads on this turn between the summit and the periphery, and 9 on the base and 9 on the umbilical wall. It measures: Height, 13.8 mm.; greater diameter, 8.0 mm.; lesser diameter, 6.7 mm.

This race is most nearly related to its neighbor, *Hispanipoma quaternatum charmettense,* from which it can at once be distinguished by its much more elongate form.

HISPANIPOMA QUATERNATUM CHARMETTENSE, new subspecies

Plate 14, Figure 10

This subspecies was collected by Henderson and Simpson at Aux Charmettes, near Cap-Haïtien. It is easily distinguished from the others by its short-ovate outline.

The type (U.S.N.M. No. 355331) has 132 axial riblets on the last turn, 11 spiral threads between the summit and the periphery of the same whorl, 10 spiral threads on the base, and 3 heavy ones on the outside of the umbilical wall and a number of obsolete threads farther in.

ORCUTTIPOMA, new genus

Small rhytidopomid shells varying in outline from elongate-conic to ovate. The whorls are marked by slender sublamellar axial ribs, which may become expanded into auricles at the summit. These ribs may be straight, wavy, or even scalloped. The spaces between the axial ribs are marked by numerous very fine, closely spaced spiral lines. A series of scallops arranged in spiral order may be present or absent on the outer portion of the umbilicus. Aperture varying from ovate to almost circular; peristome double, the inner slightly exserted; the outer expanded. Operculum with subcentral nucleus, bearing many slender, retractively curved riblets, extending from the inner edge outward and growing weaker outwardly, vanishing before reaching the outer edge of the chondroid basal plate.

Type species: *Orcuttipoma orcutti*, new species.

KEY TO THE SPECIES OF ORCUTTIPOMA

Outer peristome narrowly expanded	orcutti
Outer peristome broadly expanded	rollei

ORCUTTIPOMA ORCUTTI, new species

PLATE 14, FIGURE 6

Shell elongate-conic, unicolor or with a brown subperipheral band, sometimes also indications of another band are present above the periphery. Nuclear whorls 2, decidedly inflated, strongly rounded, microscopically granulose. Postnuclear whorls inflated, strongly rounded, and marked by almost vertical sublamellar axial riblets, of which 60 are present on the last turn in the type. These axial riblets may be straight, slightly wavy, or even weakly scalloped. The spaces between the axial riblets are marked by numerous microscopic, closely spaced spiral lines. Suture very strongly constricted. Periphery well rounded. Base short, openly umbilicated, and marked by the continuation of the axial ribs, which extend upon the umbilical wall and the microscopic spiral striations referred to for the spire. The last whorl is solute for a fraction of a turn. Aperture broadly oval; peristome double, the outer narrowly expanded, forming a slight auricle at the posterior angle and marked by concentric lines; the inner slightly exserted and reflected. Operculum as described for the genus.

The type (U.S.N.M. No. 504001) was collected by Orcutt a little north of Abricots. It is a complete specimen having 7.7 whorls and measures: Height, 8.3 mm.; greater diameter, 3.4 mm.; lesser diameter, 3.0 mm.

This species, unlike the others of the genus, always has the spire complete. There is considerable variation in the strength of the waviness and scalloping of the ribs as well as in the spiral lines. There is also variation in the thickness of the spire, but I have been unable to connect these differences with geographic distribution; the same thing may occur in a large gathering from any locality. There are 50 lots before me collected by Mr. Henderson and myself or by Mr. Orcutt. Their distribution ranges from Abricots around the coast to Aquin Bay on the south side. Orcutt also collected it on the Île à Vache, but even these seem inseparable from those of the main island.

U.S.N.M. No. 401648 contains 53 topotypes from the same source.

U.S.N.M. No. 401667 contains 11 specimens collected by Orcutt on the west bank of the Rivière Trou Sardines.

U.S.N.M. No. 403778 contains 67 specimens collected by Orcutt at Point-à-Bourgaux.

U.S.N.M. No. 404140 contains 56 specimens collected by Orcutt on a hill west of Metesignix.

U.S.N.M. No. 404760 contains 52 specimens collected by Orcutt on a hill north and adjoining Port à Piment.

U.S.N.M. No. 404742 contains 18 specimens collected by Orcutt west of Metesignix.

U.S.N.M. No. 404735 contains 14 specimens collected by Orcutt in a ravine west of Metesignix.

U.S.N.M. No. 404101 contains 46 specimens collected by Orcutt on the first hill east of Damassins.

U.S.N.M. No. 404088 contains 42 specimens collected on a hill west of the river near the sea at Coteaux.

U.S.N.M. No. 404128 contains 136 specimens collected by Orcutt on a hillside south of the road west of Coteaux.

U.S.N.M. No. 402423 contains 31 specimens collected by Orcutt at Coteaux.

U.S.N.M. No. 404033 contains 53 specimens collected by Orcutt on the hill north of Coteaux east of the river.

U.S.N.M. No. 403942 contains 111 specimens collected by Orcutt on a steep hill east of Coteaux.

U.S.N.M. No. 404876 contains 6 specimens collected by Orcutt at Anse à Juif.

U.S.N.M. No. 404886 contains 15 specimens collected by Orcutt at Anse à Juif at an elevation of 200 feet.

U.S.N.M. No. 403971 contains 3 specimens collected by Orcutt at Anse à Drick.

U.S.N.M. No. 403947 contains 4 specimens collected by Orcutt east of the Rivière de l'Anse à Drick.

U.S.N.M. No. 404872 contains 16 specimens collected by Orcutt west of the first creek west of Carpentier.

U.S.N.M. No. 404821 contains 50 specimens collected by Orcutt west of Carpentier.

U.S.N.M. No. 414781 contains 66 specimens collected by Orcutt 1 mile west of Point Sable.

U.S.N.M. No. 402108 contains 5 specimens collected by Orcutt on the north side of the Rivière du Port Salut near the mouth.

U.S.N.M. No. 403747 contains 9 specimens collected by Orcutt from Port Salut.

U.S.N.M. No. 402316 contains 2 specimens collected by Orcutt on the road between L'Acul and Port Salut about halfway to the summit.

U.S.N.M. No. 402345 contains 1 specimen collected by Orcutt on the road between L'Acul and Port Salut on the east slope of the first summit.

U.S.N.M. No. 402296 contains 11 specimens collected by Orcutt on the beach between Rivière de L'Acul and St. Jean.

U.S.N.M. No. 402154 contains 19 specimens collected by Orcutt on the hill south of the Rivière de L'Acul at "Acuzoo Village."

U.S.N.M. No. 402758 contains 12 specimens collected by Orcutt on a steep wooded slope in a dry ravine near Les Cayes.

U.S.N.M. No. 401773 contains 38 specimens collected by Orcutt in the vicinity of Les Cayes.

U.S.N.M. No. 403551 contains 349 specimens collected by Orcutt at Les Cayes.

U.S.N.M. No. 402778 contains 7 specimens collected by Orcutt in a ditch at Les Cayes.

U.S.N.M. No. 401753 contains 22 specimens collected by Orcutt on the road from Les Cayes to Laborde.

U.S.N.M. No. 404980 contains 7 specimens collected by Orcutt near the top of the hill Corbenia near Les Cayes.

U.S.N.M. No. 404052 contains 41 specimens collected by Orcutt south of Corbenia near Les Cayes.

U.S.N.M. No. 403441 contains 4 specimens collected by Orcutt on the road between Vieux Bourg at Baie des Flamands.

U.S.N.M. No. 403258 contains 20 specimens collected by Orcutt in drift at Aquin.

U.S.N.M. No. 403633 contains 8 specimens collected by Orcutt at Aquin.

U.S.N.M. No. 401846 contains 2 specimens collected by Orcutt at Tarco, Île à Vache.

U.S.N.M. No. 401802 contains 14 specimens collected by Orcutt at Landefue Baie, Île à Vache.

ORCUTTIPOMA ROLLEI (Weinland)

Shell small, truncated specimens varying from elongate-ovate to cylindroconic; the color may vary from flesh-color to pale horn-color to bright brown; it may be unicolor or variously banded with interrupted spiral lines of brown. Peristome pale, always showing the brown spiral markings. Nuclear whorls almost 2, well rounded, inflated, microscopically granulose. Postnuclear whorls inflated, strongly rounded, marked by strong, sublamellose, retractively slanting axial ribs, which become expanded at the summit into broad denticles. They also become slightly expanded at the periphery. The spaces between the axial riblets are marked by closely crowded, slender spiral lines, which are apparent under moderate magnification. In addition to this, there are present faint indications of broader spiral threads, which render the axial riblets somewhat wavy at their outer extremity. Suture very strongly constricted. Periphery of the last whorl well rounded. Base openly umbilicated, marked by the continuation of the axial riblets and spiral cords, which here become more pronounced than on the spire; the fine spiral lirations referred to on the spire are also present. Last whorl solute for about one-tenth of a turn. Aperture subcircular; peristome double, the outer broadly expanded, of almost equal width, only a trifle narrower on the parietal wall, forming the merest indication of an auricle at the posterior angle, marked by a series of concentric lines that indicate lamellae; inner peristome projecting slightly above the outer, slightly expanded and slightly reflected. Operculum with weak, retractively curved riblets, which vanish before reaching the outer edge of the whorls of the basal chondroid plate.

This species extends along both coasts of the southern peninsula as well as on Grande Cayemite Island and Île à Vache. I am recognizing six subspecies, which the following key and definitions will help to differentiate:

KEY TO THE SUBSPECIES OF ORCUTTIPOMA ROLLEI

- Shell cylindroconic.................................... vachecolum
- Shell elongate-ovate
  - Axial ribs lamellar.
    - Axial ribs very strongly scalloped......................fauxcapense
    - Axial ribs moderately strongly scalloped................ blanchardi
  - Axial ribs sublamellar.
    - Axial ribs very strong....................................rollei
    - Axial ribs not very strong.
      - Shell stout.................................... cayemitense
      - Shell not stout ....serraticosta

ORCUTTIPOMA ROLLEI VACHECOLUM, new subspecies

PLATE 14, FIGURE 4

This subspecies is confined to the Île à Vache off the south coast of the south peninsula where Orcutt collected numerous specimens at ten different stations.

This race is distinguished from the rest by having the shell more slender, that is, cylindroconic; the axial ribs are strong and strongly scalloped. Of these scallops, six occur on the axial ribs on the last turn, three on the base, and one within the umbilicus. Those on the base and umbilicus are much weaker than those on the spire.

The type (U.S.N.M. No. 504002) comes from Landefue Bay. It has 4.9 whorls remaining, and 41 axial ribs on the last turn, and measures: Height, 7.0 mm.; greater diameter, 3.7 mm.; lesser diameter, 2.9 mm.

U.S.N.M. No. 401802 contains 532 topotypes.

U.S.N.M. No. 404919 contains 121 specimens collected by Orcutt at Lancedufont Soulette, the second cliff west of Garde d'Haiti Station, Île à Vache.

U.S.N.M. No. 404934 contains 48 specimens collected by Orcutt at Lancedufont on the last cliff west of Garde d'Haiti Station.

U.S.N.M. No. 403476 contains 424 specimens collected by Orcutt at Sommant Petilence, first cliff west of Garde d'Haiti Station, southeastern part of the hill.

U.S.N.M. No. 403865 contains 6 specimens collected by Orcutt at the west end of the mangrove swamp.

U.S.N.M. No. 403848 contains 25 specimens collected by Orcutt on the bluff near Cape Raquettes.

U.S.N.M. No. 401826 contains 17 specimens collected by Orcutt west of Garde d'Haiti Station.

U.S.N.M. No. 401848 contains 4 specimens collected by Orcutt at Tarco on the northwest side of Île à Vache.

U.S.N.M. No. 401892 contains 2 specimens collected by Orcutt at Soulette Bay, Île à Vache.

ORCUTTIPOMA ROLLEI FAUXCAPENSE, new subspecies

PLATE 14, FIGURE 5

This subspecies extends from Abricots to Faux Cap, that is, the northwestern part of the south peninsula. Its small size will at once distinguish it from the others.

The type (U.S.N.M. No. 504003) comes from Abricots. It is a complete specimen having 6.1 whorls and measures: Height, 5.8 mm.; greater diameter, 3.0 mm.; lesser diameter, 2.3 mm. The last whorl bears 54 axial ribs, each of which has four scallops between summit and suture. On the base the scallops are obsolete but there are two faint ones on the outer edge of the umbilical wall.

U.S.N.M. No. 401623 contains 4 topotypes.

U.S.N.M. No. 401637 contains 16 specimens collected by Orcutt at Faux Cap.

ORCUTTIPOMA ROLLEI BLANCHARDI, new subspecies

PLATE 14, FIGURE 7

This subspecies John B. Henderson and I collected near Pétionville, and Orcutt obtained it on the estate of the Haitian Sugar Co. north of Port-au-Prince. It has the axial ribs strongly lamellar, but moderately scalloped; in fact, so little are the scallops differentiated on the last turn that one cannot definitely determine them. There are, however, two feeble ones on the outer edge of the umbilicus.

The type (U.S.N.M. No. 355943), which comes from Pétionville, has 4.6 whorls, the last of which bears 46 axial ribs. It measures: Height, 7.5 mm.; greater diameter, 4.2 mm.; lesser diameter, 3.2 mm.

Fifteen topotypes (U.S.N.M. No. 355944) yield the following average data:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	7.9	4.9	3.8
Least	6.0	4.0	3.2
Average	7.0	4.6	3.6

I take great pleasure in naming this for Bailey Blanchard, Minister to Haiti during our sojourn there in 1917, as an expression of gratitude for the great assistance he rendered our collecting expedition.

U.S.N.M. No. 403038 contains 3 specimens collected by Orcutt near Pétionville.

U.S.N.M. No. 403019 contains 144 specimens collected by Orcutt east of the Haitian American Sugar Co. plantation.

ORCUTTIPOMA ROLLEI ROLLEI (Weinland)

PLATE 14, FIGURE 8

1862. *Cyclostoma rollei* WEINLAND, Malakozool. Blätter, vol. 9, p. 89.
1898. *Colobostylus rollei* KOBELT and MÖLLENDORFF, Nachr. deutschen malak. Ges., vol. 30, p. 192.
1920. *Chondropoma (Chondropoma) rollei* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 62.

This subspecies John B. Henderson and I, and C. R. Orcutt, found exceedingly abundant about Jérémie and from there west to Trou Sardines; that is, the north coast of the western part of the southern peninsula. Many lots from various stations are before me, as well as two of Weinland's cotypes from southwestern Haiti. One of these I am figuring.

The robust form and very strong ribs, which are not so acutely lamellar as in the other forms, differentiate this from the other subspecies.

The specimen figured is one of the two Weinlandian cotypes (U.S. N.M. No. 124398). It has 4.2 whorls, of which the last bears 47 axial riblets, six scallops between the summit and periphery, two on the base, and one on the outer edge of the umbilical wall. It measures: Height, 7.6 mm.; greater diameter, 4.2 mm.; lesser diameter, 3.5 mm.

U.S.N.M. No. 504004 contains 46 specimens collected by Henderson and Bartsch east of Jérémie.

U.S.N.M. No. 504005 contains 67 specimens collected by Henderson and Bartsch southeast of Jérémie.

U.S.N.M. No. 355937 contains 234 specimens collected by Henderson and Bartsch at Jérémie.

U.S.N.M. No. 403509 contains 252 specimens collected by Orcutt at Jérémie.

U.S.N.M. No. 504007 contains 51 specimens collected by Henderson and Bartsch at Roseau.

U.S.N.M. No. 504006 contains 27 specimens collected by Henderson and Bartsch at the old fort at Jérémie.

U.S.N.M. No. 402660 contains 395 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

U.S.N.M. No. 402882 contains 253 specimens collected by Orcutt east of Trou Bonbon.

U.S.N.M. No. 401606 contains 33 specimens collected by Orcutt west of Abricots on the east bank of the first river east of Petite Rivière.

U.S.N.M. No. 504008 contains 51 specimens collected by Henderson and Bartsch at Debarras.

U.S.N.M. No. 401587 contains 185 specimens collected by Orcutt on the east side of the Rivière Trou Sardines near its mouth.

U.S.N.M. No. 401625 contains 4 specimens collected by Orcutt on a limestone hill between Dalmarie and Abricots.

U.S.N.M. No. 401689 contains 22 specimens collected by Orcutt on the east bank of the Rivière Trou Sardines.

U.S.N.M. No. 404078 contains 13 specimens collected by Orcutt on a limestone cliff along the shore west of Trou Rousselin.

U.S.N.M. No. 504009 contains 28 specimens collected by Henderson and Bartsch at Abricots.

U.S.N.M. No. 162987 contains 20 specimens collected by Henderson and Simpson at Jérémie.

U.S.N.M. No. 355936 contains 1 specimen collected by Henderson at Jérémie.

U.S.N.M. No. 504010 contains 3 specimens collected by Henderson and Bartsch on the top of the range at Roseau.

U.S.N.M. No. 504011 contains 38 specimens collected by Henderson and Bartsch on the second river south of Jérémie.

U.S.N.M. No. 504012 contains 5 specimens collected by Henderson and Bartsch 5 miles west of Jérémie.

U.S.N.M. No. 403064 contains 10 specimens collected by Orcutt west of Jérémie.

U.S.N.M. No. 401718 contains 72 specimens collected by Orcutt on a limestone hill near the mouth of Trou Sardines east of Rivière Abricots.

U.S.N.M. No. 401658 contains 35 specimens collected by Orcutt north of Abricots on the west bank of the Petite Rivière.

U.S.N.M. No. 514013 contains 1 specimen collected by Henderson and Bartsch at Anse à Cochon.

U.S.N.M. No. 404073 contains 25 specimens collected by Orcutt north of Tiburon south of the first village on the road to Carcasse.

U.S.N.M. No. 401638 contains 97 specimens collected by Orcutt at Faux Cap.

ORCUTTIPOMA ROLLEI CAYEMITENSE, new subspecies

Plate 14, Figure 9

This subspecies comes from Grande Cayemite Island. It resembles typical *rollei* in stoutness but differs from it in having the axial ribs much less strongly developed.

The type (U.S.N.M. No. 504014) has 4 whorls remaining, the last one of which bears 55 riblets but has the scallops obsolete. There are two feeble scallops on the base and two strong scallops on the outer edge of the umbilicus. The type measures: Height, 7.2 mm.; greater diameter, 4.4 mm.; lesser diameter, 3.7 mm.

U.S.N.M. No. 380316 contains 4 topotypes from the same source.

ORCUTTIPOMA ROLLEI SERRATICOSTA (Weinland)

PLATE 14, FIGURE 12

1862. *Cyclostoma serraticosta* WEINLAND, Malak. Blätter, vol. 9, p. 89.
1891. *Choanopoma serraticosta* CROSSE, Journ. Conchyl., vol. 39, p. 165.

This race appears to occupy a less coastwise range than the others, being apparently more confined to the upland mountainside regions. Weinland had only two specimens, which were collected by Rolle in a wooded valley near Corail. Our specimens also come from the region of Corail, and the top of Mount Rochelois. It is a pale race not quite so stout as *rollei,* with the axial ribs much more weakly scalloped, which gives them a serrate appearance.

The specimen figured (U.S.N.M. No. 504015) comes from Corail and has 4.1 whorls remaining, of which the last bears 65 axial riblets and has seven scallops between summit and periphery, two on the base, and one on the outer edge of the umbilicus. It measures: Height, 7.0 mm.; greater diameter, 3.9 mm.; lesser diameter, 3.4 mm.

U.S.N.M. No. 504016 contains 6 topotypes from the same source.

U.S.N.M. No. 504017 contains 10 specimens collected by Henderson and Bartsch at Corail.

U.S.N.M. No. 380097 contains 1 specimen collected by Eyerdam at the top of Mount Rochelois.

Genus PARACHONDROPS Henderson and Bartsch

1920. *Parachondrops* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, pp. 66-67.

The typical subgenus *Parachondrops* has not been found in Hispaniola.

KEY TO THE SUBGENERA OF PARACHONDROPS

Summit of axial ribs fused to form tufts........................ Clenchipoma
Summit of axial ribs not fused to form tufts.................. Parachondrops

CLENCHIPOMA, new subgenus

Shell cylindroconic. The whorls are marked by axial riblets, some of which are fused into tufts at the summit. The spiral sculpture consists of feeble threads, which render the axial riblets weakly nodulose. Base narrowly openly umbilicated. Aperture oval; peristome double. Operculum with strongly elevated, retractively curved riblets, which are fused on their inner edge of the opercular turns and terminate outwardly on about the middle of the whorls.

Type species: *Parachondrops (Clenchipoma) clenchi,* new species.

PARACHONDROPS (CLENCHIPOMA) CLENCHI, new species

PLATE 14, FIGURE 11

Shell elongate-conic, flesh-colored, with narrow spiral interrupted bands of brown, of which four occur between the summit and the periphery and three on the base. These bands are apparent also in the aperture and extend over the peristome. Nuclear whorls almost 2, inflated, strongly rounded, forming a flattened mammillated apex. Postnuclear whorls rather high between sutures, moderately rounded, and marked by retractively curved, sublamellar axial ribs, which expand at the summit into hollow cusps. Of these axial ribs, 77 are present on the last turn. The spiral sculpture consists of obsolete threads, which feebly nodulate the axial ribs or, at all events, render them wavy. Of these, seven are present between the summit and the suture. Suture moderately constricted. Periphery well rounded. Base rather long, well rounded and narrowly openly umbilicated, and marked by the continuation of the axial ribs and two strong spiral cords, which render the ribs nodulose. An additional spiral cords is apparent near the outer edge of the umbilicus. The last whorl is solute for about one-tenth of a turn. Aperture subcircular; peristome double, the outer slightly expanded, forming an auricle at the posterior angle, of about the same width all around; the inner slightly exserted and appressed to the outer. Operculum with strong, retractively curved ribs, which fuse at their inner edge into a slight lamella and which evanesce at about the middle of the whorls of the basal chondroid plate.

The type (Mus. Comp. Zool. No. 119517a) has 5 whorls remaining and measures: Height, 9.0 mm.; greater diameter, 3.6 mm.; lesser diameter, 3.2 mm. This was collected by the Museum of Comparative Zoology's expedition to Santo Domingo at Cayo Carbon (Carenara), Santa Barbara, Samaná Bay.

This expedition also collected it at the following localities: Los Farallones, 8 miles east-northeast of Santa Barbara; Cayo Chico, 2½ miles east of Santa Barbara; Punta Lirio, 2 miles east of Santa Barbara, Punta Siballo, Cayo de Tamaso, and Cayo Paloma, all in Samaná Bay.

Most of this material is in the collection of the Museum of Comparative Zoology. A small series in the National Museum, as follows:

U.S.N.M. No. 504029 contains 9 topotypes from the same source.

U.S.N.M. No. 536864 contains 11 specimens from Los Farallones, 8 miles east-northeast of Santa Barbara.

U.S.N.M. No. 536865 contains 1 specimen from Cayo Chico, 2½ miles east of Santa Barbara.

U.S.N.M. No. 536866 contains 5 specimens from Punta Lirio, 2 miles east of Santa Barbara.

U.S.N.M. No. 536867 contains 1 specimen from Punta Siballo.

U.S.N.M. No. 536868 contains 5 specimens from Cayo de Tamaso, Santa Barbara de Samaná.

U.S.N.M. No. 536869 contains 2 specimens from Cayo Paloma, Samaná Bay.

COLONINA, new genus

Shell moderately large, elongate-ovate, with closely spaced axial riblets, which are rendered vertebrated by the spiral sculpture. The axial ribs are gathered into tufts at the summit and project above this as conspicuous denticles. Aperture oval; peristome double, the outer expanded on the inner lip, slightly so on the outer, or this may be fused with the inner peristome to form a sharp edge. The operculum bears a slightly raised lamella on the inner edge of the whorls, from which strongly elevated, retractively slanting, slender lamellae radiate outwardly, fusing at their outer edge into a solid ridge. The calcification of the operculum does not extend to the outer edge of the chondroid basal plate, but leaves a small space showing between the turns.

Type species: *Colonina fortunensis,* new species, from the Bahamas (for description see page 245).

KEY TO THE HISPANIOLAN SPECIES OF COLONINA

- Last whorl solute.
  - Summit of the whorls strongly denticulated.................. tortuensis
  - Summit of the whorls not strongly denticulated............ manielensis
- Last whorl not solute.
  - Axial riblets fused into a solid band at summit.............. molensis
  - Axial riblets not fused into a solid band at summit.
    - Whorls decidedly inflated............................ moustiquensis
    - Whorls not decidedly inflated.............................. haitensis

COLONINA TORTUENSIS, new species

PLATE 15, FIGURE 3

Shell elongate-conic, white. Nuclear whorls inflated, strongly rounded, microscopically granulose. Postnuclear whorls strongly rounded, narrowly shouldered at the summit and marked by retractively slanting, slender axial ribs, of which 120 occur on the first of the remaining turns, 160 on the second, and 158 on the last. These ribs are about one-fourth as wide as the spaces that separate them, and they become expanded at the summit, or else 2, 3, 4, or even 5 may become fused into a large white hollow denticle. The spiral sculpture consists of strong rounded threads, which are of equal distribution and which are about one-third as wide as the spaces that separate them. Of these threads, 6 occur on the first, 7 on the second, and 10 on the last turn. These sculptural elements appear as if the spiral sculpture was the basic sculpture and the axial ribs were superimposed thereon; at their junction with the spiral threads they form slender thickenings, the long axis of which coincides with the axial sculpture. The spaces enclosed between the axial ribs and spiral threads are rectangular, having their long axis parallel with the axial sculpture. Suture channeled, rendered wavy by the denticles at the summit of the whorls. Periphery of the last whorl strongly rounded. Base short, narrowly umbilicated, strongly rounded and marked by the continuation of the axial riblets and 8 spiral cords, which are about as strong as those on the spire and bear the same relationship to the axial riblets as those of the spire. The last whorl is slightly solute. Aperture broadly oval; peristome double, the outer slightly expanded, forming a moderately conspicuous auricle at the posterior angle and a somewhat denticulated, moderately broadly expanded flap, which extends over the umbilicus. On the outer lip it extends but slightly beyond the inner peristome, and on the parietal wall it also is narrow and almost touches the preceding turn; the inner peristome is slightly expanded and reflected. Operculum lost in all our specimens.

The type (U.S.N.M. No. 355327) collected by W. L. Abbott, comes from Tortue Island, north of Haiti. It has a little over 3 whorls and measures: Height, 12.9 mm.; greater diameter, 7.5 mm.; lesser diameter, 6.9 mm.

U.S.N.M. No. 355328 contains 3 topotypes from the same source.

U.S.N.M. No. 504024 contains 37 specimens collected by Mr. and Mrs. E. C. Leonard in a dry thicket-covered cliff on the west side of La Vallée, Tortue Island.

U.S.N.M. No. 504025 contains 7 specimens collected by Mr. and Mrs. Leonard at Point Macon, Tortue Island.

COLONINA MANIELENSIS, new species

PLATE 15, FIGURE 9

Shell rather large, elongate-ovate, pale brown. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose. Postnuclear whorls well rounded and marked by slightly retractively curved axial ribs, which on the early whorls are decidedly lamellar, while on the last turn they are not as elevated, but well rounded. Of these axial ribs, 159 are present on the last whorl. The spiral sculpture consists of threads about as strong as the axial ribs. Of these, 16 are present between the summit and the periphery on the last whorl. On the last turn the axial ribs are wider than the spaces that separate them. On the early whorls the reverse is true. The junctions of the axial ribs and spiral threads form weak nodules. Suture narrowly, rather deeply, channeled. Periphery well rounded. Base well rounded, openly umbilicated, and marked by the continuation of the axial ribs and seven spiral threads. There are eight additional spiral threads on the umbilical wall. Those of the anterior portion of the base and the outer portion of the umbilical wall are stronger than those on the spire. The last whorl is solute for about one-fifth of a turn. Aperture broadly oval; peristome double, the outer narrow on the parietal and outer lip, wider at the junction of the basal and inner lip, forming a strong auricle at the posterior angle; the outer peristome is marked by concentric lamellae which are well emphasized at the auricle; inner peristome stout, strongly exserted and slightly reflected. Operculum typically coloninid.

The type (U.S.N.M. No. 363827) was collected by Dr. W. L. Abbott in debris from under a rock by a small cave at the small savanna, one hour's walk west of Maniel Viejo, Bahoruco Mountains, Dominican Republic, at an elevation of 2,500 feet. It has 5 whorls remaining and measures: Height, 17.3 mm.; greater diameter, 10.0 mm.; lesser diameter, 7.5 mm.

U.S.N.M. No. 536870 contains 43 topotypes.

COLONINA MOLENSIS, new species

PLATE 15, FIGURE 1

Shell elongate-ovate, pale yellowish brown, with a zone of white at the summit; peristome white. Nuclear whorls 1.7, inflated, strongly rounded, forming a depressed mammillated apex. Postnuclear whorls inflated, strongly rounded, and marked by closely spaced, slender, sublamellar axial riblets, of which 152 are present on the last turn. These riblets become fused at their summit into a solid plate. In addition to the axial sculpture, the whorls are marked by strong spiral cords, of which seven are present on the first and second and eight on the last turn. These spiral cords render the axial riblets decidedly nodulose, the nodules being elongated and having their long axis parallel with the axial sculpture. They give the impression of a series of pearls strung on a thread. Suture rendered inconspicuous by the fused riblets at the summit. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, narrowly openly umbilicated, and marked by the continuation of the axial ribs and seven spiral cords. Within the edge of the umbilicus five additional cords may be seen. There are probably more hidden by the reflected outer peristome. Aperture broadly oval; peristome double, the outer broadly expanded on the inner lip and denticulated on its outer margin, less expanded on the parietal wall and basal and outer lip, but forming a strong auricle at the posterior angle, which continues backward as a denticulated carina; the inner peristome is slightly exserted. Operculum strongly calcified and marked by strong retractively curved ribs which are more or less fused to form a plate. The ribs do not extend to the outer limit of the turn of the basal chondroid plate but terminate about one-quarter of the distance before reaching the outer margin.

The type (U.S.N.M. No. 504019) was collected by Mr. and Mrs. E. C. Leonard at the base of grass tufts on coral rocks near the seashore, south side of the bay, 5 miles west of Le Mole, Haiti. It has 4 whorls remaining and measures: Height, 14.7 mm.; greater diameter, 8.8 mm.; lesser diameter, 7.7 mm.

The fusion of the axial riblets at the summit will at once distinguish this from the other Haitian members of the genus.

U.S.N.M. No. 504020 contains 79 topotypes from the same source.

U.S.N.M. No. 504021 contains 121 specimens collected between Jean Rabel and Le Mole in crevices of coral rocks between the bay and the seashore.

U.S.N.M. No. 504022 contains 2 specimens collected near Côtes de Fer.

COLONINA MOUSTIQUENSIS, new species

Plate 15, Figure 5

Shell elongate-ovate, pale orange. Nuclear whorls decollated in all our specimens. Postnuclear whorls decidedly inflated, strongly rounded, and marked by very fine, slightly retractively curved, closely spaced axial riblets, of which 167 are present on the last turn. In addition to the axial riblets, the shell is marked by heavy spiral keels, of which 8 are present between the summit and the suture on the last turn and 6 on the base, and 14 are apparent in the outer portion of the umbilicus. The junctions of the axial ribs and the spiral threads form minute rounded nodules, while the spaces enclosed between them form rectangular pits with their long axis parallel with the axial sculpture. Suture strongly constricted, rendered slightly denticulated by the axial ribs. Periphery inflated, strongly rounded. Base moderately long, strongly rounded, narrowly umbilicated, and marked by the continuation of the axial ribs and spiral cords referred to above. The axial ribs also extend into the umbilicus. Aperture broadly oval; peristome double, the outer broadly expanded on the inner lip and reflected over the preceding turn at the parietal wall. On the basal and outer lip the outer peristome is narrow; the outer peristome is denticulated all around and forms a small auricle at the posterior angle. The inner peristome is slightly exserted, reflected and appressed to the outer. Operculum with a heavy calcareous deposit, which consists of fused, retractively curved riblets that suggest a lamella. The calcification does not extend to the outer limit of the turns of the basal chondroid plate but leaves about a quarter of the distance of the basal plate showing.

The type (U.S.N.M. No. 573641) was collected by Mr. and Mrs. E. C. Leonard east of Moustique Bay, Haiti. It has 4.2 whorls remaining and measures: Height, 13.7 mm.; greater diameter, 7.3 mm.; lesser diameter, 6.7 mm.

This species suggests *Colonina tortuensis* but can readily be differentiated from this by its much more inflated form.

U.S.N.M. No. 504023 contains 15 topotypes from the same source.

COLONINA HAITENSIS, new species

PLATE 15, FIGURE 4

Shell very elongate-ovate, pale yellowish buff; aperture yellowish white within, which is also the color of the peristome. Nuclear whorls decollated in all our specimens. Postnuclear whorls moderately inflated, strongly rounded, marked by very slender, closely spaced, sublamellar, retractively slanting axial riblets, of which 132 riblets occur on the first, 180 on the second, and 182 on the remaining turns. These riblets are of different strength and spacing. As in other members of this group, the heavier and more distantly spaced ones are followed by slender, more closely spaced riblets. The ribs become slightly expanded at the summit, and several of them fuse into rather conspicuous hollow cusps. The spiral sculpture consists of prominent cords, of which 9 occur on the first and second and 10 on the last turn between the summit and the periphery. The relationship of the axial and spiral sculpture is as if the spiral cords form the basal elements upon which the axial ribs were superimposed. The junctions of the axial ribs and spiral cords form conspicuous, narrow, elongated nodules, their long axis coinciding with the axial sculpture, while the spaces enclosed between them are rectangular narrow areas, having their long axis parallel with the ribs. Suture channeled. Periphery of the last whorl inflated, strongly rounded. Base rather long, strongly rounded, very narrowly umbilicated, marked by 10 spiral cords and the continuation of the axial riblets. Last whorl slightly solute. Aperture broadly oval; peristome double, the outer strongly expanded, somewhat fluted and crenulated at the edge from the posterior angle to the inner lip, forming a conspicuous auricle at the posterior angle; on the inner lip it is broadest and quite hides the umbilicus when viewed squarely, although it does not cover the umbilicus; the outer peristome of the parietal wall is very narrow and touches the preceding whorl; the inner peristome is strongly exserted, particularly so on the outer lip. Operculum as described for the genus.

The type (U.S.N.M. No. 355333) was collected by Henderson and Simpson at Cap-Haïtien. It has a little over 3 whorls remaining and measures: Height, 12.5 mm.; greater diameter, 7.0 mm.; lesser diameter, 6.2 mm.

A series of 30 topotypes (U.S.N.M. No. 162989) yields the following measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	15.3	7.9	7.2
Least	9.1	5.2	4.5
Average	11.8	6.6	5.9

This species resembles *C. moustiquensis* but is in every way smaller, with the outer peristome more conspicuously expanded.

HAITIPOMA, new genus

Shell varying from cylindroconic to elongate-ovate in outline. The whorls are marked with axial ribs, which fuse into tufts at the summit. The spiral sculpture is well developed; its threads render the axial riblets weakly nodulose at their junction. The spiral threads are heavier on the umbilical wall than on the spire. Suture channeled in varying degrees in the different races. Last whorl solute. Aperture oval, varyingly auriculated at the posterior angle. Peristome double, the outer varying greatly in the expansion of the inner lip in the different species. Operculum with excentric nucleus, provided with strong lamellar, retractively curved ribs, which do not extend to the outer edge of the basal chondroid plate.

Type species: *Cyclostoma aminensis* Pfeiffer = *Haitipoma aminense* (Pfeiffer).

This genus somewhat resembles *Hispanipoma* from which the double peristome will at once distinguish it.

KEY TO THE SPECIES OF HAITIPOMA

- Inner lip of outer peristome very broadly expanded.
  - Shell slender .... **catalinense**
  - Shell stout .... **marcense**
- Inner lip of outer peristome not very broadly expanded.
  - Shell elongate-ovate.
    - Axial ribs and spiral threads distantly spaced .... **eutyches**
    - Axial ribs and spiral threads not distantly spaced.
      - Tufts at the summit exceedingly strong .... **hinchense**
      - Tufts at the summit not exceedingly strong.
        - Axial ribs very closely spaced.
          - Aperture with a strong auricle .... **yaquense**
          - Aperture without a strong auricle .... **genevievae**
        - Axial ribs not very closely spaced.
          - Shell stout .... **poolei**
          - Shell slender .... **aminense**
  - Shell not elongate-ovate but cylindroconic.
    - Sculpture strong .... **cinclidodes**
    - Sculpture feeble .... **abbotti**

HAITIPOMA CATALINENSE, new species

PLATE 15, FIGURE 6

Shell elongate-ovate, flesh-colored, with interrupted spiral bands of pale brown, these usually occupying the spaces between the spiral cords; one band at the periphery is a little stronger than the rest. Nuclear whorls almost 2, well rounded, microscopically granulose, the last whorl showing indications of axial threads. The nuclear whorls form a truncated apex. Postnuclear whorls inflated, well rounded, marked by retractively slanting, sublamellar axial riblets, which become more closely approximated as the whorls increase in number. These riblets are of fairly regular width but differ considerably in spacing. Of these riblets, 70 occur on the first, 84 on the second, 108 on the third, and 140 on the last turn. At irregular intervals two or three of these riblets are gathered into tufts at the summit. The spiral sculpture consists of feeble, low, rounded threads, of which five occur on the first, six on the second, and eight on the remaining turns between the summit and the periphery. The junctions of the axial ribs and spiral threads form very slender elongated nodules, the long axis of which coincides with the axial sculpture; they also render the axial riblets wavy. Suture slightly channeled. Periphery of the last whorl strongly rounded. Base short, well rounded, moderately openly umbilicated, and marked by the continuation of the axial riblets and six spiral threads, the latter increasing in size from the periphery toward the umbilicus. The inside of the umbilical wall is also marked by the axial ribs and 14 feeble spiral threads, which decrease in size from without inward. The umbilicus is to a great extent overshadowed by the reflected outer peristome. The last whorl is almost appressed to the preceding turn. Aperture broadly oval, almost subcircular; peristome double, the outer strongly expanded with a conspicuous auricle at the posterior angle, of almost even width on the outer lip, a little more broadly expanded at the posterior angle of the aperture, and least so on the parietal wall; the inner peristome is very stout, erect, and slightly reflected. Operculum typically haitipomid.

The type (U.S.N.M. No. 355344) was collected by Dr. W. L. Abbott on Catalina Island, Dominican Republic. It has 4.5 whorls remaining and measures: Height, 11.3 mm.; greater diameter, 5.9 mm.; lesser diameter, 5.3 mm.

Fifty topotypes (U.S.N.M. No. 355345) yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	12.6	6.5	5.6
Least	7.7	4.3	3.8
Average	10.5	5.5	4.9

This subspecies may be easily distinguished from *Haitipoma marcense*, with which it shares the strongly expanded peristome of the inner lip, by its much more slender shape.

HAITIPOMA MARCENSE, new species

PLATE 15, FIGURE 7

Shell elongate-conic, pale brown with an orange tinge. Nuclear whorls 1.5, well rounded, microscopically granulose, forming a rather small apex. Postnuclear whorls somewhat inflated, strongly rounded, marked by retractively slanting, sublamellar axial riblets, of which 88 occur on the first of the remaining turns, 136 on the second, 158 on the third, and

174 on the last. These riblets are not all of the same strength or spacing, the larger ones being usually more distantly spaced than the slender ones, which, as a rule, follow them and are more closely spaced. The riblets become expanded at the summit where two, three, four, or even more may become fused into a conspicuous tuft. The spiral sculpture consists of low, rounded threads, of which 7 occur on the first of the remaining turns, 9 on the second, and 13 on the rest. The junctions of the axial riblets and spiral threads form slender, elongated nodules having their long axis parallel with the ribs, while the spaces enclosed between them are narrow rectangular shallow impressed areas. Suture channeled. Periphery inflated, well rounded. Base short, rounded, broadly and openly umbilicated, marked by 10 spiral cords and the continuation of the axial ribs. Within the umbilicus additional spiral cords are present. Last whorl solute for about one-tenth of a turn. Aperture broadly oval; peristome double, the outer projecting narrowly, except on the inner lip, where it is much broader; the inner is exserted and slightly reflected. Operculum typically haitipomid.

The type (U.S.N.M. No. 355334) was collected by John B. Henderson and the author at St. Marc. It has a little over 3 whorls and measures: Height, 16.3 mm.; greater diameter, 9.4 mm.; lesser diameter, 8.3 mm.

Twenty additional specimens (U.S.N.M. No. 355302) from the type locality yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	17.9	10.1	9.0
Least	11.7	7.2	6.1
Average	14.7	8.9	7.6

The species appears to range from St. Marc south through the Cul-de-Sac region.

This subspecies shares the expanded inner lip of the outer peristome with *H. catalinense,* from which its much larger size and stouter form will readily distinguish it.

U.S.N.M. No. 355303 contains 14 specimens collected by Henderson and Bartsch at 200–300 feet altitude at St. Marc.

U.S.N.M. No. 392346 contains 52 specimens collected by Bartsch on bluffs 1 mile north of St. Marc.

U.S.N.M. No. 355335 contains 13 specimens collected by Henderson and Bartsch at St. Marc.

U.S.N.M. No. 355337 contains 10 specimens collected by Henderson and Bartsch at Kilometer 81.

U.S.N.M. No. 392871 contains 10 specimens collected by Bartsch on top of the hill before reaching the Artibonite Valley.

U.S.N.M. No. 355310 contains 1 specimen collected by Hermann Rolle at Port-au-Prince.

U.S.N.M. No. 355311 contains 3 specimens from Port-au-Prince from the Prime Collection.

U.S.N.M. No. 529452 contains 2 specimens received from Sowerby and Fulton.

U.S.N.M. No. 355310 contains 1 specimen collected by Henderson back of L'Arcahaie.

HAITIPOMA EUTYCHES (Pilsbry)

Shell elongate-ovate, varying in color from white to pale yellow. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, narrowly shouldered at the summit, and marked by retractively curved, sublamellar axial riblets, which are rather distantly spaced, of which several fuse to form sharp, strong, exserted cusps at the summit. The spiral sculpture consists of tufts about as strong as the axial riblets, which render the axial riblets nodulose. The spaces enclosed between the axial ribs and spiral threads are more or less squarish pits, sometimes rectangular. Suture deeply channeled. Periphery strongly rounded. Base inflated, strongly rounded, and marked by the junction of the axial ribs and spiral threads, the number of which, as those on the spire, vary in the different subspecies. The umbilical wall also bears spiral threads. The last whorl is decidedly solute for almost half a turn. Aperture oval; peristome double, the outer a little more expanded on the basal portion of the inner lip than on the rest, forming a conspicuous auricle at the posterior angle; inner peristome exserted and slightly reflected. Operculum typically haitipomid.

I am recognizing three subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF HAITIPOMA EUTYCHES

Suture broadly channeled.	
Whorls decidedly inflated	wetmorei
Whorls not decidedly inflated	eutyches
Suture not broadly channeled	rabelense

HAITIPOMA EUTYCHES WETMOREI, new subspecies

PLATE 15, FIGURE 2

This subspecies was collected by Dr. Alexander Wetmore at the Pettigrew Plantation at Fort Liberté in northwestern Haiti. It has the suture very deeply channeled and very strong ribs and spiral threads and is rather more chubby than the other two races.

The type (U.S.N.M. No. 504030) has 4.3 whorls remaining, the last of which bears 104 axial riblets, 8 spiral threads between summit and periphery, 9 on the base, 10+ on the umbilical wall. It measures: Height, 13.0 mm.; greater diameter, 7.3 mm.; lesser diameter, 6.3 mm.

U.S.N.M. No. 403882 contains 8 topotypes from the same source.

HAITIPOMA EUTYCHES EUTYCHES (Pilsbry)

PLATE 15, FIGURE 8

1933. *Chondropoma eutyches* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 125–126, pl. 6, fig. 13.

This subspecies was collected by A. Olsson at Hato Viejo, Dominican Republic. It is easily differentiated from the other two in having the sculpture a little less strong and a little more closely spaced and the carina at the posterior angle on the solute portion of the whorl less pronounced. The auricle at the posterior angle is also less developed.

The type (Acad. Nat. Sci. Phila. No. 160981) has 4.1 whorls remaining and bears 113 ribs on the last turn. It also has 12 spiral threads between the summit and the periphery, 6 spiral threads on the base, and 7 on the umbilical wall. It measures: Height, 14.4 mm.; greater diameter, 7.1 mm.; lesser diameter, 6.4 mm.

Through the kindness of Dr. H. A. Pilsbry I have been able to describe and figure this unique specimen.

HAITIPOMA EUTYCHES RABELENSE, new subspecies

PLATE 16, FIGURE 10

This race was collected by Mr. and Mrs. E. C. Leonard between Jean Rabel and Le Mole, Haiti. It has the suture more narrowly channeled than the other two and the cusps more pronounced. The spaces between the axial and spiral threads are also more squarish.

The type (U.S.N.M. No. 504031) has 4.2 whorls remaining, the last of which bears 88 axial ribs and 9 spiral cords between the summit and periphery, 9 on the base, and 9 on the umbilical wall. It measures: Height, 13.0 mm.; greater diameter, 6.9 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 504032 contains 11 topotypes from the same source.

HAITIPOMA HINCHENSE, new species

PLATE 16, FIGURE 9

Shell very elongate-ovate, flesh-colored, with a buffish tinge. Nuclear whorls 2, inflated, strongly rounded, forming a rather small apex. Postnuclear whorls well rounded and marked by slender, retractively curved axial riblets, which vary materially in strength, heavy ones being succeeded by finer elements. A number of these riblets are gathered into very strong cusplike tufts at the summit of the whorls. Of these axial ribs, 126 are present on the last turn. They extend over the base into the umbilicus. The spiral sculpture consists of slender threads equaling the axial riblets in strength. Of these, 14 are present on the last turn between summit and suture, 7 on the base, and 9 on the umbilical wall. The spaces enclosed between the axial ribs and spiral threads are more or less rectangular pits, having their long axis parallel with the axial sculpture. Suture narrowly channeled. Periphery inflated, strongly rounded. Base inflated, strongly rounded, openly umbilicated. The last whorl is solute for one-fourth of a turn. Aperture oval; peristome double, the outer very narrow, a little wider on the anterior portion of the inner lip than on the rest, forming a weak auricle at the posterior angle. Operculum typically haitipomid.

The type (U.S.N.M. No. 504033) was collected by W. J. Eyerdam in the Massif du Nord on limestone rocks at Hinche, Haiti. It has 4.2 whorls remaining and measures: Height, 14.5 mm.; greater diameter, 7.2 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 379923 contains 43 topotypes from the same source.

HAITIPOMA YAQUENSE, new species

PLATE 16, FIGURE 11

Shell elongate-ovate, milk-white. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose. Postnuclear whorls inflated, strongly rounded, conspicuously shouldered at the summit, and marked by very slightly retractively slanting, closely spaced, sublamellar axial riblets, of which 189 are present on the last whorl; these are of varying strength and spacing, the heavier, more distantly spaced ones being followed by closer spaced, narrower elements. These riblets do not become slightly expanded at the summit, but at quite regular intervals two or three become fused to form a hollow tubercle. These tubercles crenulate the summit. The spiral sculpture consists of rather feeble threads, of which 7 occur on the first of the remaining turns and 10 on the rest. These spiral threads render the axial ribs wavy but hardly nodulose. The spaces enclosed between them are mere impressed lines. Suture strongly channeled. Periphery inflated, well rounded. Base short, inflated, well rounded, and marked by the continuation of the axial ribs and obsolete spiral cords. Within the broad open umbilicus, however, about eight spiral cords are present which are very strongly developed. Last whorl solute for about one-fourth of a turn. Aperture broadly oval; peristome double, the outer narrowly expanded all around, a little more so at the junction of the outer and basal lip, crenulated at the free margin, and produced into a conspicuous auricle at the posterior angle; the inner peristome is exserted, a little more so on the outer than the inner lip and slightly reflected. Operculum typically haitipomid.

The type (U.S.N.M. No. 355342) was collected by Dr. W. L. Abbott at Guayubin, Río Yaque del Norte, Dominican Republic. It has a little over 4 whorls and measures: Height, 14.0 mm.; greater diameter, 7.5 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 355343 contains 32 topotypes which yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	16.1	7.5	6.9
Least	10.3	5.9	5.2
Average	12.7	6.8	6.2

This race in form most nearly resembles *Haitipoma genevievae,* from which its strong auricle at the posterior angle of the aperture will easily distinguish it.

HAITIPOMA GENEVIEVAE, new species

PLATE 16, FIGURE 3

Shell elongate-ovate, flesh-colored. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, well rounded, narrowly shouldered at summit, and marked by closely spaced, threadlike axial ribs, of which 132 are present on the last turn between summit and periphery. These riblets extend over the base and the umbilical wall. The spiral sculpture consists of threads about as strong as the axial riblets or even a little stronger than the axial riblets on the early turns. Of these, 22 are present between the summit and the periphery on the last whorl, 12 on the base, and 16 on the umbilical wall. Suture very narrowly channeled. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, and openly narrowly umbilicated; the last whorl is solute for about one-fifth of a turn. Aperture ovate; peristome double, the outer almost evenly narrowly expanded, forming a slight auricle at the posterior angle; the inner slightly exserted and reflected upon the outer. Operculum?

The type (U.S.N.M. No. 504034) was collected by Mr. and Mrs. E. C. Leonard at Cabaret, Moustique Bay, Haiti. It has 3.4 whorls remaining and measures: Height, 12.3 mm.; greater diameter, 7.5 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 504035 contains a topotype from the same source.

I take pleasure in naming this species for Mrs. Leonard.

HAITIPOMA POOLEI, new species

PLATE 16, FIGURE 1

Shell pale yellow. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, and marked by slender axial ribs, of which 126 are present on the last turn. A number of these ribs at intervals are gathered into sharp cusps at the summit, which are more or less appressed to the preceding turn. The spiral sculpture consists of threads about as strong as the ribs. Of these, 13 are present on the last whorl between the summit and the periphery, 10 on the base, and 12 on the umbilical wall. The junctions of the axial ribs and the spiral threads form minute nodules, while the spaces enclosed between them are shallow rectangular areas. Suture strongly constricted. Periphery inflated, strongly rounded. Base inflated, strongly rounded, openly umbilicated. The last whorl is solute for about one-fourth of a turn. Aperture oval; peristome double, the outer a little wider on the anterior portion of the inner lip, narrower on the basal and outer lip and narrowest on the parietal wall, forming an inconspicuous auricle at the posterior angle; the outer peristome is slightly fluted; the inner peristome is strong, strongly exserted, and slightly reflected. Operculum?

The type (U.S.N.M. No. 504036) was collected by A. J. Poole, in a cave at L'Atalaye Plantation, 3 miles west of St. Michel, Haiti. It has 3.9 whorls remaining and measures: Height, 14.2 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 504037 contains 2 additional specimens collected by Mr. Poole in a cave 1 mile northwest of St. Michel.

HAITIPOMA AMINENSE (Pfeiffer)

Plate 16, Figure 2

1858. *Cyclostomus aminensis* Pfeiffer, Malak. Blätter, vol. 5, p. 140.
1888. *Colobostylus aminensis* Crosse and Fischer, Journ. Conchyl., vol. 36, p. 234.
1920. *Parachondria (Parachondria) aminensis* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 66.

Shell elongate-ovate, yellowish brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, narrowly shouldered at the summit, marked by retractively slanting, closely spaced, sublamellar axial riblets, of which 106 occur on the first turn, 148 on the second, and 160 on the last. These riblets are about as wide as the spaces that separate them and become slightly expanded at the summit. At fairly close intervals two or three of them become fused into conspicuous tufts, which crenulate the suture. The spiral sculpture consists of rather strong cords, of which six occur on the first of the remaining turns, seven on the second, and eight on the last. The axial riblets appear as if superimposed on the spiral cords, and the junction on the two forms slender elongated nodules having their long axis parallel with the axial sculpture. The spaces enclosed between them are elongated pits also having their long axis parallel with the axial sculpture. The axial riblets vary somewhat in strength and spacing, the heavier ones being succeeded by finer riblets, which are more closely spaced. Suture channeled. Periphery inflated, strongly rounded. Base short, openly umbilicated, inflated, well rounded, marked by the continuation of the axial riblets and five strong spiral cords. In addition to that, eight spiral cords are present on the umbilical wall. Last whorl solute for about one-fourth of a turn. Aperture very broadly oval, almost subcircular; peristome double, the outer expanded all around, forming a conspicuous auricle at the posterior angle; the inner decidedly exserted, particularly so on the outer lip. Operculum typically haitipomid.

The specimen described and figured (U.S.N.M. No. 355340) is one of four collected by Parker in Río Amino, Dominican Republic. It has a little over 4 whorls and measures: Height, 10.5 mm.; greater diameter, 5.9 mm.; lesser diameter, 4.9 mm. The type came from Río Amino.

U.S.N.M. No. 355341 contains 3 additional specimens received from C. W. Johnson labeled "Santo Domingo."

Five of these specimens yield the following measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
3+	10.9	6.5	5.2
4+	11.0	6.1	5.0
4+	11.0	6.0	5.3
3+	10.5	6.1	5.2
4+	11.2	6.5	5.2

In its moderately distantly spaced axial ribs, this species resembles *H. poolei,* from which its more slender form easily distinguishes it.

HAITIPOMA CINCLIDODES (Pfeiffer)

Plate 16, Figure 6

1852. *Cistula cinclidodes* Pfeiffer, Monographia pneumonopomorum viventium, vol. 1, pp. 277–278.
1854. *Cyclostoma cinclidodes (Cistula)* Pfeiffer, Proc. Zool. Soc. London, 1852, p. 142.
1854. *Cyclostoma cinclidodes* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, vol. 1, sect. 19, p. 369, pl. 47, figs. 25–26.
1858. *Cistula cinclidodes* Pfeiffer, Monographia pneumonopomorum viventium, suppl. 1, p. 135.
1863. *Chondropoma cinclidodes* Reeve, Conchologia iconica, No. 81.
1920. *Parachondria (Parachondria) cinclidodes* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 66.

Shell cylindroconic, yellowish white, with narrow, interrupted spiral bands of pale brown. Of these bands, five occur between the summit and suture, while a much broader one is present on the base a little anterior to the periphery. Interior of the aperture yellowish white; peristome white. Nuclear whorls decollated in our specimens. Postnuclear whorls well rounded, narrowly shouldered at the summit, and marked by slender, retractively slanting axial riblets, of which 58 occur on the first of the remaining turns, 78 on the second, and 90 on the last. The axial riblets are not all of the same strength and spacing. A few heavier, more distantly spaced elements are usually followed by slender, more closely approximated lamellae. These riblets become slightly expanded at the summit, and at irregular intervals two or sometimes three are gathered together to form a small hollow cusp. The spiral sculpture consists of low, broad threads, of which four are present on the first, six on the second, and eight on the last of the remaining turns. These spiral threads render the axial riblets slightly wavy as well as nodulose at their free margin. The slender tubercles are elevated and have their long axis parallel with the axial sculpture; the spaces enclosed between the axial and spiral sculpture consist of rectangular areas that are only slightly impressed. Suture moderately constricted, slightly channeled. Periphery of the last whorl strongly rounded. Base moderately long, well rounded, narrowly umbilicated, and marked by the continuation of the axial ribs and four broad, low, rounded spiral cords. Within the narrow umbilicus eight additional slender spiral threads are present. Last whorl solute for about one-tenth of a turn. Aperture broadly oval; peristome double, the outer slightly expanded and reflected, scalloped on the outer margin on the outer basal and inner lip, narrower on the parietal wall; the inner peristome is also slightly expanded and slightly reflected. Operculum paucispiral with the nucleus halfway between subcentral and submarginal; on the outside of the turns retractively slanting, moderately closely spaced lamellae are present, which are fused on their inner border and extend three-fourths of the way across the whorl, again slightly fusing on their outer margin; the outer fourth of the turns of the chondroid plate is free of lamellae.

U.S.N.M. No. 355347 contains 2 specimens received from Sowerby and Fulton, marked "Haiti." One of these, the specimen described and figured, has a little over 5 whorls and measures: Height, 10.7 mm.; greater diameter, 5.4 mm.; lesser diameter, 4.7 mm. The other specimen has a little over 4 whorls and measures: Height, 8.8 mm.; greater diameter, 4.8 mm.; lesser diameter, 4.0 mm.

HAITIPOMA ABBOTTI, new species

PLATE 16, FIGURE 4

Shell minute, yellowish white, elongate-ovate. Nuclear whorls decollated. Postnuclear whorls inflated, strongly rounded, narrowly channeled at the summit and marked by retractively slanting axial riblets, of which 70 occur on the first, 128 on the second, and 110 on the last turn. These riblets are not all of the same width, but the heavier are a little more distantly spaced and are succeeded by narrower, more closely spaced individuals. The riblets are slightly expanded at the summit and occasionally several of them become fused to form a small, not very conspicuous hollow denticle at the summit. The spiral sculpture consists of weakly developed threads, of which six occur on the first, eight on the second, and nine on the last turn. The junctions of the axial riblets and spiral threads form slender elongate nodules, while the spaces enclosed between them are shallow, impressed, narrow pits with their long axis parallel with the axial sculpture. Periphery well rounded. Base moderately long, narrowly, openly umbilicated, well rounded, and marked by the continuation of the axial riblets and five spiral threads, which are a little more distantly spaced and a trifle stronger than those on the spire. Within the umbilicus 12 very slender additional spiral threads are present. Last whorl slightly solute. Aperture broadly oval; peristome double, the outer expanded, slightly reflected, and extending a little beyond the inner all around, forming a moderately large auricle at the posterior angle; the inner peristome is slightly exserted and slightly reflected. Operculum unknown.

The type (U.S.N.M. No. 355346) was collected by Dr. W. L. Abbott on Catalinita Island, Dominican Republic. It has a little over 4 whorls and measures: Height, 7.3 mm.; greater diameter, 3.9 mm.; lesser diameter, 3.5 mm.

This is the smallest of all the Hispaniolan species.

KISSLINGIA, new genus

Shell of ovoid or turbinid outline, marked by axial ribs, which extend into the umbilicus. The spiral sculpture may consist of strong threads rendering their junction with the axial ribs nodulose, or it may be absent or merely indicated by a few faint nodules on the ribs near the summit. The spiral sculpture, however, is always present on the umbilical wall. Aperture ovoid; peristome simple, broadly reflected. Operculum with a pseudolamella, that is, the retractively curved axial riblets are fused at their outer edge to form a thin lamella, which extends part way across the turns, showing a part of the basal chondroid plate at the outer edge. The lamella is thin and easily broken away; when this is the case the retractively curved riblets between the pseudolamella and the basal chondroid plate come in evidence.

Type species: *Kisslingia hinchensis,* new species.

KEY TO THE SPECIES OF THE GENUS KISSLINGIA

Spire conspicuously nodulose.
- Shell of turbinid outline.......... **hinchensis**
- Shell of ovate outline.......... **bahorucensis**

Spire not nodulose.
- Shell large, height more than 20 mm.......... **poloensis**
- Shell smaller, height less than 16 mm.......... **clenchi**

KISSLINGIA HINCHENSIS, new species

PLATE 17, FIGURE 3

Shell of turbinid outline, thin, semitranslucent, yellowish white, with squarish brown spots, which are rather distantly spaced and arranged in both spiral and axial series. Of these dots, three are present between the summit and the periphery and one a little anterior to the suture. Peristome white. Nuclear whorls 2, well rounded, microscopically granulose, forming a rather small apex. Postnuclear whorls decidedly inflated, strongly rounded, and marked by retractively curved, slender axial riblets, of which 112 are present on the last turn. The spiral sculpture consists of threads about as strong as the ribs, of which 14 are present between the summit and the periphery. The junctions of the axial ribs and the spiral threads form rounded nodules, while the spaces enclosed between them are rectangular or squarish pits. Suture deeply channeled. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, broadly and rather openly umbilicated, and marked by the continuation of the axial ribs and 16 spiral threads. Sixteen additional spiral threads are present on the umbilical wall. On the base and umbilical wall the junction of the axial ribs and spiral threads also forms tubercles. Last whorl solute for about one-fifth of a turn. Aperture broadly oval; peristome simple, moderately broadly reflected, broadest at the junction of the columellar and basal lip and narrowest on the parietal wall. Operculum typically kisslingid.

The type (U.S.N.M. No. 504084) was collected by W. J. Eyerdam in woods on the mountain at Basin Sin, Massif du Nord, Hinche. It has a little more than 6 whorls and measures: Height, 16.4 mm.; greater diameter, 11.8 mm.; lesser diameter, 9.7 mm.

Its turbinid shape will at once differentiate it from *Kisslingia bahorucensis,* which is of ovate outline.

U.S.N.M. No. 379926 contains 154 topotypes from the same source.

KISSLINGIA BAHORUCENSIS, new species

PLATE 17, FIGURE 2

Shell ovate, pale yellow, with interrupted spiral bands of brown, which in part are arranged in both axial and spiral series and in part irregularly scattered. The individual spots that make up these series are also of irregular slant, except for the band at the periphery, which is obliquely protractively arranged and quite regular and fairly regularly spaced. The band at the summit contains the heaviest elements of color; peristome white. Nuclear whorls 2, well rounded, microscopically granulose, forming a small apex. Postnuclear whorls moderately well rounded, marked by slightly retractively curved axial ribs, of which 147 are present on the last turn in the type. These riblets are rendered slightly wavy by the spiral sculpture, and they terminate more abruptly on the right margin and slope gently toward the left; they are much more closely approximated on the last tenth of the last whorl and smaller, which materially increases the count. The spiral sculpture consists of weak threads of which six are present on the second whorl and nine on the third, while on the last turn they are rather obsolete. Suture narrowly but rather deeply channeled. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, and marked by the continuation of the axial ribs, the spiral sculpture being obsolete or absent. On the umbilical wall there are indications of weak spiral threads. Aperture broadly oval, slightly angulated at the posterior angle; peristome simple, expanded, more so at the junction of the basal and inner lip. Operculum typically kisslingid.

The type (U.S.N.M. No. 504038) was collected by Gerrit S. Miller, Jr., in Polo District, Bahoruco Mountains, Dominican Republic, at an elevation of 2,000 feet. It has 4 whorls remaining and measures: Height, 14.7 mm.; greater diameter, 8.8 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 389890 contains 52 topotypes from the same source.

Mr. Miller also collected 2 specimens (U.S.N.M. No. 389809) on the slopes of Loma de Cielo, Bahoruco Mountains, at an elevation of 3,000 feet.

Dr. W. L. Abbott collected 7 specimens (U.S.N.M. No. 504039) 2 miles north of Maniel Viejo, Bahoruco Mountains, at an elevation of 3,500 feet.

Its ovate form will readily differentiate this species from *Kisslingia hinchensis.*

KISSLINGIA POLOENSIS, new species

Plate 17, Figure 4

Shell large, broadly ovate, white, with interrupted vermiculated axial bands of brown, which are arranged also in spiral series; the one at the periphery is broader than the rest. Peristome white. Nuclear whorls 2, inflated, well rounded, microscopically granulose, forming a small apex. Postnuclear whorls inflated, strongly rounded, and marked by slightly retractively curved axial riblets, of which 121 are present on the last turn. These ribs are closely approximated and partly separated by mere impressed lines. The spiral sculpture is scarcely indicated, a mere hint on the early turns is present, but in the umbilicus there are three weak threads near the outer edge. Suture narrowly channeled. Periphery decidedly inflated, well rounded. Base inflated, well rounded, openly umbilicated. Aperture oval; peristome simple, quite strongly expanded. Operculum typically kisslingid.

The type (U.S.N.M. No. 504040) was collected by Dr. W. L. Abbott near Polo, Bahoruco Mountains, Dominican Republic. It has 4.1 whorls remaining and measures: Height, 20.5 mm.; greater diameter, 15.3 mm.; lesser diameter, 10.8 mm.

This species is nearest related to *Kisslingia clenchi.* As in *clenchi,* the spiral sculpture is practically absent except in the umbilicus. It differs from *clenchi,* however, in its much larger size and more inflated form of the whorls.

U.S.N.M. No. 504041 contains 2 topotypes from the same source.

KISSLINGIA CLENCHI (Pilsbry)

PLATE 17, FIGURE 1

1933. *Chondropoma (Chondropomium) clenchi* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 126, pl. 9, figs. 2, 3.

Shell elongate-ovate, flesh-colored, with chestnut-brown spots at the summit alternating with soiled white areas. There is also an interrupted series of oblique, protractively slanting, brown spots at the periphery and more or less zigzag, faint, brownish marks on the whorls. The base is marked by a spiral series of dots, which are distantly spaced and arranged in both axial and spiral series. The peristome is white. Nuclear whorls decollated. Postnuclear whorls somewhat inflated, strongly rounded, and marked by slender, retractively curved, axial riblets, which are about as wide as the spaces that separate them. Of these riblets, 169 are present on the last whorl. Suture slightly channeled. Periphery inflated, strongly rounded. Base short, strongly rounded, and marked by the continuation of the axial ribs and on the wall of the rather broadly open umbilicus by a number of low, rounded spiral threads. Aperture broadly ovate; peristome simple, the outer broadly expanded and reflected, forming a slight auricle at the posterior angle, rather strongly expanded on the inner lip and a little less so on the parietal wall. The reflected peristome of the parietal wall may be adnate to the preceding turn or may be slightly solute. Operculum typically kisslingid.

The specimen described and figured (U.S.N.M. No. 426036) is one of two paratypes received from Dr. H. A. Pilsbry. It comes from Sr. Del Monte's coffee plantation, Station 85, between the main baté and the top of Alies in the coffee finca proper at an elevation of about 3,000 feet, Dominican Republic. It has 3.5 whorls remaining and measures: Length, 15.1 mm.; greater diameter, 11.1 mm.; lesser diameter, 8.0 mm.

The small size will readily differentiate this from *Kisslingia poloensis*, and the absence of nodulations at once separates it from *K. bahorucensis*.

KLATTEA, new genus

Shell elongate-conic. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose. Postnuclear whorls moderately rounded and marked by retractively curved axial ribs, which are fused into weak tufts at the summit. The spiral sculpture consists of rather broad threads, which render the axial ribs wavy and feebly nodulose at their junction. Suture strongly constricted. Base moderately long, openly umbilicated, and marked by the same sculpture as that characterizing the spire. This type of sculpture is also present on the umbilical wall. Base moderately broadly umbilicated; the last whorl solute for a fraction of a turn. Aperture oval; peristome simple. Operculum with a fragile pseudolamella, which shows the retractively curved axial riblets on the outside. This lamella does not extend to the outer edge of the whorls of the basal chondroid plate, but leaves a space there separating the turns.

Type species: *Chondropoma subreticulatum* Maltzan = *Klattea subreticulata* (Maltzan).

This genus differs from *Kisslingia* in its completely different outline; it has, however, like *Kisslingia,* a simple peristome and a pseudolamella.

KEY TO THE SPECIES OF KLATTEA

Spiral sculpture on the last whorl strong .... **subreticulata**
Spiral sculpture on the last whorl feeble.
  Axial ribs fine .... **capillacissima**
  Axial ribs strong .... **capillacea**

KLATTEA SUBRETICULATA (Maltzan)

PLATE 16, FIGURE 7

1888. *Chondropoma subreticulatum* MALTZAN, Nachr. deutschen malak. Ges., vol. 20, pp. 181–182.

1888. *Chondropoma subreticulatum* var. *sericea* MALTZAN, Nachr. deutschen malak. Ges., vol. 20, p. 182.

1920. *Chondropoma (Chondropomorus) subreticulatum* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Shell of moderate size, elongate-conic, pale horn-colored, inconspicuously marked with interrupted narrow spiral bands of brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, narrowly shouldered at the summit, and marked by slender, rather regular, threadlike, retractively slanting axial riblets, which are more distantly spaced on the early whorls than on the last. On the latter the spaces that separate them are about one and one-half times as wide as the ribs, while on the first turn the intercostal spaces are about three times as wide. Of these riblets, 60 occur on the first of the remaining turns, 100 on the second, 142 on the third, and 156 on the last. These riblets become slightly expanded at the summit and occasionally two become fused here, but they do not form conspicuous tufts. The spiral sculpture consists of obsolete, low threads, too faint to be counted. These render the axial riblets slightly sinuous. Suture well constricted, rendered slightly sinuous by the axial ribs. Periphery slightly inflated, well rounded. Base moderately long, openly umbilicated, and marked by the continuation of the axial riblets and faint spiral threads. Within the umbilicus the spiral threads become a little more distantly spaced and a little more strongly developed. Last whorl solute for about one-twentieth of a turn. Aperture oval, peristome simple, slightly expanded and slightly reflected. Operculum paucispiral with the nucleus halfway between submarginal and subcentral, marked by retractively slanting, slender lamellae which are fused on the inner border and also on the outer; the outer border falls about one-fourth of the width of the whorl short of reaching the outer margin of the chondroid plate; the spaces between the lamellae in the lamellar region are also covered partly by a pseudolamella.

U.S.N.M. No. 162935 contains 55 specimens collected by Henderson and Simpson at Cap-Haïtien, one of which I have figured. It has a little over 4 whorls and measures: Height, 11.2 mm.; greater diameter, 5.2 mm.; lesser diameter, 4.7 mm. This is the type locality.

U.S.N.M. No. 379910 contains 119 specimens collected by Eyerdam under leaves at the mouth of a tunnel at Cap-Haïtien.

One hundred of these specimens yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	15.3	7.2	5.8
Least	9.5	4.8	4.1
Average	12.0	6.0	5.1

KLATTEA CAPILLACISSIMA, new species

PLATE 16, FIGURE 8

Shell elongate-conic, pale brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded and marked by retractively slanting axial riblets, of which 153 are present on the last whorl in the type. These riblets are very closely approximated and are separated on the last whorl by mere impressed lines. The spiral sculpture consists of obsolete elements that merely render the axial ribs feebly thickened in regular spiral series. Suture very strongly constricted, very narrowly channeled, rendered denticulated by the axial riblets. Periphery inflated, strongly rounded, and marked by the continuation of the axial ribs, which cross the short openly umbilicated base and pass on to the umbilical wall. No marked spiral threads are present on the base. The umbilical wall, on the other hand, bears eight spiral threads. Last whorl solute for about one-fifth of a turn, oval, with a slight angulation at the posterior angle which extends over the solute portion of the last turn as a carina. Peristome simple, slightly expanded and slightly reflected. Operculum typically klatteid.

The type (U.S.N.M. No. 504042) was collected by Henderson and Bartsch at Port-au-Prince. It has 4.4 whorls remaining and measures: Height, 12.9 mm.; greater diameter, 6.4 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 355358 contains 16 topotypes.

U.S.N.M. No. 134924 contains 8 additional specimens without specific locality.

KLATTEA CAPILLACEA (Pfeiffer)

Plate 16, Figure 5

1862. *Cistula? capillacea* Pfeiffer, Malak. Blätter, vol. 9, p. 154.
1920. *Parachondria (Parachondria) capillacea* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 66.

Shell elongate-conic, pale brown. Peristome yellowish white. There is a dark purplish-brown line marking the oblique plug in the decollated portion. Nuclear whorls decollated in all our specimens. Postnuclear whorls rounded and marked by retractively curved, fairly stout axial riblets, of which 120 are present on the last turn in the specimen figured. These riblets become expanded and fused into denticles at the summit. The spiral sculpture consists of feebly developed threads on the early whorls and mere indications thereof on the later turns, where they render the axial riblets feebly thickened at their junction. Suture rather strongly constricted, slightly channeled. Periphery of the last whorl well rounded. Base short, slightly inflated, well rounded, openly umbilicated, and marked only by the continuation of the axial ribs extending upon the umbilical wall, which also bears eight spiral threads, which grow consecutively weaker from the outer one inward. Last whorl solute for about one-sixth of a turn. Aperture broadly ovate, slightly angulated at the posterior angle. Peristome simple, moderately expanded and reflected. Operculum typically klatteid.

The specimen figured (U.S.N.M. No. 355359) was received from Sowerby and Fulton with the locality label "Haiti." It has 5.3 whorls remaining and measures: Height, 14.1 mm.; greater diameter, 6.7 mm.; lesser diameter, 5.2 mm. The type locality is Cap-Haïtien.

U.S.N.M. No. 355356 contains 429 specimens collected by Henderson and Simpson at Charmette.

This species can readily be differentiated from *Klattea capillacissima* by its stronger and lesser number of axial ribs.

Genus LICINA Gray

In 1847, in the Proceedings of the Zoological Society of London, p. 181, Gray created the genus *Licina,* with *Turbo labea* (=*labeo)* as genotype. He cited Browne's name *Licina,* 1756,[14] among its synonyms. Browne's name, being pre-Linnaean, is automatically ruled out. However, since Browne dealt with Jamaican animals, it seems that *Licina* was looked upon as of Jamaican origin. The figure in Browne's work indicates *Annularia licina* (Linnaeus). All this is merely a bit of history with no direct bearing upon the status of *Licina,* since *Licina* Gray is typified by *Licina labeo* (Müller).

Licina labeo was described by Müller on pages 180-181 of his "Vermium Terrestrium et Fluviatilium" in 1774. Here he cited the pre-

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[14] The civil and natural history of Jamaica, p. 401, pl. 40, fig. 5.

Linnaean Lister,[15] who illustrates somewhat poorly what we have called *Licina labeo* (Müller).

Müller in his description gives the shell a length of 15 lines, i.e., a little less than 32.0 mm.; the figure has a length of 33 mm.; but the peculiar way in which it is placed and drawn gives it the aspect of a much larger mollusk. No mention is made of the country from which it was derived. Subsequent authors have assigned the name to the huge form that we are now able to proclaim a denizen of the north coast of the southern peninsula of Haiti.

When Henderson and I published our "Classification of the American Operculate Land Mollusks of the Family Annulariidae,[16] we stated on page 53 that the operculum at that time was unknown and that we were for that reason unable to assign a definite position to Gray's genus *Licina* in the system we were proposing.

Our collecting in Haiti has removed this difficulty, and I am now able to state that the operculum consists of a thin basal chondroid plate upon the outside of which is placed a covering of calcareous deposit from which rise retractively curved lamellae; these expand on their free edge where they fuse to form a thin plate. The outside of this plate, which parallels the basal chondroid plate, shows the riblets. The riblets and the plate formed by their fusing do not extend over the entire width of the opercular turns but leave a decidedly plain space at the outer margin, which separates the calcareous deposits of the succeeding whorls. The outer edge of the pseudolamellar outer plate turns upward and leaves a peripheral groove. This, in a number of species, gives the operculum a sort of 3-stage effect, which is especially emphasized in those species in which the riblets are not entirely fused on their outer edge. The fused outer plate is easily broken away and not infrequently only the indications of the remnants of the radiating riblets remain. Students are cautioned, therefore, to be very careful in studying the opercular characters of this group, which appears confined to Hispaniola and whose largest species it embraces.

Type species: *Nerita labeo* Müller = *Licina labeo* (Müller).

In spite of the above disposition of the name *Licina*, its status is by no means certain, for in the "Amtlicher Bericht über die 24. Versammlung Deutscher Naturforscher und Aerzte in Kiel im September 1846," published in 1847, H. Beck uses *Licina* Browne as a subgenus of *Cyclostoma* citing only *L. elegans* Draparnaud. Gray's use of the name *Licina* dates from November 1847. If the Bericht referred to above was published earlier in 1847, then *L. elegans* Draparnaud (=*Pomatias elegans* (Müller)) becomes the type of *Licina* Beck and a synonym of *Pomatias*, and the Hispaniolid shells listed under *Licina* Gray must have another designation—as such I now propose **Graypoma**.

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[15] Historiae sive synopsis methodicae conchyliorum, pt. 1, pl. 25, fig. 23, 1685.

[16] Proc. U. S. Nat. Mus., vol. 58, pp. 49–82, 1920.

KEY TO THE SPECIES OF LICINA

- Outer peristome broadly expanded.
  - Outer peristome adnate to the preceding turn.
    - Axial and spiral sculpture very fine .... **kobelti**
    - Axial and spiral sculpture not very fine.
      - Axial and spiral sculpture strongly developed.
        - Umbilicus broad.
          - Axial ribs and spiral threads distantly spaced.... **dubia**
          - Axial ribs and spiral threads closely spaced..... **rollei**[17]
        - Umbilicus narrow .... **habichi**
      - Axial and spiral sculpture not strongly developed.
        - Axial and spiral sculpture obsolete on the last whorl .... **pestelensis**
        - Spiral sculpture obsolete only on the last whorl..**gimbiensis**
  - Outer peristome not adnate to the preceding turn........... **michelensis**
- Outer peristome not broadly expanded.
  - Outer peristome reflected decidedly backward ....**cayemitensis**
  - Outer peristome not reflected decidedly backward.
    - Peristome brown .... **evoluta**
    - Peristome white .... **labeo**

LICINA KOBELTI (Maltzan)

Plate 17, Figure 5

1888. *Chondropoma kobelti* Maltzan, Nachr. deutschen malak. Ges., vol. 20, p. 180.
1888. *Chondropoma kobelti fusca* Maltzan, Nachr. deutschen malak. Ges., Vol. 20, p. 180.
1891. *Choanopoma kobelti,* Crosse, Journ. Conchyl., vol. 39, p. 168, pl. 2, fig. 5.
1920. *Tudora (Tudora) kobelti* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 77.

Shell elongate-ovate, thin, yellowish white. Nuclear whorls 2, strongly rounded, forming a very small apex, which coincides with the outlines of the spire. Postnuclear whorls inflated, strongly rounded, narrowly shouldered at the summit; the first marked by slender hairlike riblets, which are distantly spaced on the first postnuclear whorl but become more closely approximated on the next turn; on the last whorl they are separated by spaces about as wide as the axial ribs. In the specimen figured, 164 are present on the last turn. The spiral sculpture consists of slender threads a little less strong than the axial riblets. Of these, 27 are present between the summit and periphery on the last whorl. The spiral threads render the axial riblets minutely nodulose. Suture strongly constricted. Periphery strongly rounded. Base moderately long, openly umbilicated, and marked by the continuation of the axial riblets, which also extend over the umbilical wall where they become sublamellar, and by 16 spiral threads, which are a little stronger than those on the spire, while on the umbilical wall there are 18 spiral threads, which are even stronger than those on the spire and base. The last whorl is slightly solute. Aperture broadly oval; peristome double, the outer flaringly broadly expanded and adnate to the preceding turn at the parietal wall and marked by concentric lines of growth; the inner is moderately exserted and slightly reflected. Operculum?

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[17] The outer peristome is sometimes separated from the preceding turn by a narrow slit.

The specimen figured (U.S.N.M. No. 529445) is one of 2 obtained from H. C. Fulton. It has 6 whorls and measures: Height, 18.8 mm.; greater diameter, 13.4 mm.; lesser diameter, 8.7 mm.

Maltzan states that Rolle collected this near Dondon in the northern part of Haiti.

The color form *fusca* was also obtained at the same place and appears not to merit a varietal name.

LICINA DUBIA (Gmelin)

PLATE 18, FIGURE 6

1780. *Turbo lincina* BORN, Testacea Musei Vindobonensis, p. 355, pl. 13, figs. 5, 6. Not Linnaeus, 1758.
1792. *Turbo dubius* GMELIN, Systema naturae, vol. 1, pt. 6, p. 3606.
1816. *Cyclostoma labeo* LAMARCK, Encyclopédie méthodique, vol. 2, Liste des objets (pl. 461, figs. 4a, 4b.)
1822. *Cyclostoma labeo* LAMARCK, Histoire naturelle des animaux sans vertébres, vol. 6, pt. 2, p. 145.
1851. *Cyclostoma borni (Licina?)* PFEIFFER, Proc. Zool. Soc. London, 1851, p. 63.

Shell huge, ovate, pale orange, with white peristome. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, and marked by rather distantly spaced, low axial riblets of which 102 are present on the last turn. These ribs terminate in slight tubercles at the narrowly shouldered summit. In addition to axial ribs, the whorls are marked by spiral threads about as strong as the ribs, of which 14 are present between the summit and the periphery. The junctions of the axial ribs and spiral threads produce feeble nodules. Suture strongly constricted. Periphery well rounded. Base short, well rounded, broadly openly umbilicated, and marked by the continuation of the axial ribs, which extend upon the umbilical wall, and by 15 spiral threads a little stronger than those on the spire, while on the umbilical wall there are 19 spiral threads, which are very strong at the outer edge of the umbilicus but grow less so inwardly. The last whorl is not solute. Aperture broadly oval; peristome double, the outer broadly flaringly expanded, adnate to the preceding turn at the parietal wall, and marked by concentric lines of growth; inner peristome reflected over and adnate to the outer. Operculum?

The specimen described and figured (U.S.N.M. No. 504068) is one received from Cuming labeled "*labeo*," from which the broadly evenly expanded flaring peristome will differentiate it. It has a little more than 4 whorls remaining and measures: Height, 35.9 mm.; greater diameter, 26.5 mm.; lesser diameter, 20.0 mm.

There is no locality data with the specimens, but it undoubtedly is a Haitian shell for it has all the earmarks of belonging to *Licina*.

LICINA ROLLEI Maltzan

Plate 18, Figure 4

1888. *Licina? rollei* Maltzan, Nachr. deutschen malak. Ges., vol. 20, pp. 179–180.
1888. *Licina? rollei violacea* Maltzan, Nachr. deutschen malak. Ges., vol. 20, pp. 179–180.
1891. *Licina rollei* Crosse, Journ. Conchyl., vol. 39, p. 176, pl. 2, figs. 3, 3a.
1891. *Licina rollei violacea* Crosse, Journ. Conchyl., vol. 39, p. 176.
1920. *Tudora (Tudora) rollei* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 77.

Shell elongate-ovate, pale buff, with a brownish flush, marked by interrupted spiral bands of pale brown whose elements are also arranged in axial series. These bands are present on both spire and base. Nuclear whorls 2, well rounded, forming a small apex, which is somewhat flattened at the tip. Postnuclear whorls well rounded and marked by retractively curved, rather low, closely spaced axial ribs, of which 169 occur on the last turn. These axial ribs are separated by mere impressed lines. The spiral sculpture consists of low, rounded, rather broad cords, of which 16 are present between the summit and the periphery. The junctions of the axial ribs and the spiral cords form low, weak nodules. Suture rendered conspicuous by the slightly tabulated shoulder. Periphery well rounded. Base rather short, inflated, strongly rounded, openly umbilicated and marked by the continuation of the axial ribs and 14 spiral cords, which equal those on the spire in strength. The umbilical wall has also a feeble continuation of the axial ribs and 11 spiral threads, which are much stronger here than on the spire. The last whorl is usually separated from the preceding turn by a mere slit; sometimes, however, it may be adnate. Aperture oval; peristome double, the outer moderately broadly flaringly expanded, a little narrower on the parietal wall than on the rest, forming a moderately strong auricle at the posterior angle, and marked by concentric lines of growth; the inner moderately exserted and reflected. Operculum typically licinid.

The specimen figured (U.S.N.M. No. 504069) is one received by Fulton from Maltzan, collected by Rolle at Miragoane, Haiti; it, therefore, is a topotype. It has 4.5 whorls remaining and measures: Height, 30.3 mm.; greater diameter, 21.0 mm.; lesser diameter, 15.0 mm.

U.S.N.M. No. 504071 contains 1 specimen received from Sowerby and Fulton labeled "Haiti."

U.S.N.M. No. 504072 contains 12 specimens collected by Henderson and Bartsch at Miragoane.

U.S.N.M. No. 380360 contains 7 specimens collected by Eyerdam one-half mile north of Miragoane.

U.S.N.M. No. 379992 contains 7 specimens collected by Eyerdam in forests one-half mile back of Miragoane.

U.S.N.M. No. 380431 contains 16 specimens collected by Eyerdam one-half mile west of the lake at Miragoane.

U.S.N.M. No. 380136 contains 8 specimens collected by Eyerdam one-half mile north of Miragoane.

U.S.N.M. No. 380018 contains 26 specimens collected by Eyerdam 1 mile north of Miragoane.

U.S.N.M. No. 380060 contains 1 specimen collected by Eyerdam 2 miles northeast of Miragoane.

A specimen received from Rolle (U.S.N.M. No. 504070), collected at Miragoane, is labeled "variety *violacea* Maltzan." It agrees in every way with typical *rollei*, except in color.

These series of specimens show that this dark-colored shell described by Maltzan as variety *violacea* is merely a color variant and not a zoogeographic race; I therefore do not recognize it as a subspecies.

LICINA HABICHI (Weinland)

PLATE 19, FIGURE 3

1862. *Cyclostoma habichi* WEINLAND, Malak. Blätter, vol. 9, p. 86.
1888. *Colobostylus habichi* CROSSE and FISCHER, Journ. Conchyl., vol. 36, p. 234.
1920. *Tudora (Tudora) habichi* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 77.

Shell ovate, buff, with a reddish tinge; this is particularly true of the early whorls. Peristome white. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose, forming a small gently tapering apex. Postnuclear whorls inflated, strongly rounded, and marked by slightly retractively curved, sublamellar axial riblets, which are retractively slanting and are rendered nodulose at their free edge by the weak spiral thread. Of these axial ribs, 142 are present on the last turn. Of the spiral threads, which are considerably wider than the axial ribs, 16 occur between the summit and the periphery of the last whorl. Suture rather strongly, deeply, narrowly channeled. Periphery inflated, well rounded. Base moderately long, narrowly umbilicated, and marked by the continuation of the axial ribs and 10 spiral threads, which are a little stronger than those on the spire. On the umbilical wall eight spiral threads, still stronger, are visible, and there are probably more, but the reflected peristome hides them. Aperture oval; peristome double, the outer very strongly expanded, forming a slight auricle at the posterior angle, of almost the same width except the parietal wall, which is much narrower and adnate to the preceding turn; the outer peristome is marked by concentric laminae; the inner peristome is slightly exserted, reflected and appressed to the outer. Operculum typically licinid.

I have figured Weinland's type (U.S.N.M. No. 425686), which came to the Smithsonian Institution from its author. The specimen came from "a moist wooded valley 8 hours from Jérémie" and is said to constitute the food of a lizard. It has 4.8 whorls remaining and measures: Height, 24.0 mm.; greater diameter, 14.7 mm.; lesser diameter, 12.0 mm.

U.S.N.M. No. 504073 contains 75 specimens collected by Henderson and Bartsch at Debarras west of Jérémie.

U.S.N.M. No. 425383 contains 191 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

U.S.N.M. No. 402952 contains 5 specimens collected by Orcutt east of Trou Bonbon.

U.S.N.M. No. 504074 contains 21 specimens collected by Henderson and Bartsch 5 miles west of Jérémie.

U.S.N.M. No. 504075 contains 1 specimen collected by Orcutt at Anse à Cochon.

U.S.N.M. No. 504076 contains 2 specimens collected by Henderson and Bartsch at Roseau.

Thus it occupies the northwestern portion of the north coast of the south peninsula.

LICINA PESTELENSIS, new species

PLATE 18, FIGURE 1

Shell elongate-ovate, pale buff, with a pale orange tinge toward the summit, with the peristome white. Nuclear whorls 2, well rounded, microscopically granulose, forming a small apex flattened at the summit. The postnuclear whorls are strongly rounded; the early ones are marked by weak axial riblets, while on the later ones the axial sculpture is obsolete. On the next to the last whorl 99 of these feeble riblets are present. The spiral sculpture is equally poorly developed and is indicated on the last turn by 6 feeble threads—mere angulations would probably express it better—between the summit and the periphery. Suture well impressed. Periphery well rounded. Base moderately long, well rounded, moderately umbilicated, and sculptured like the spire. On the umbilical wall, however, 11 weak threads are apparent, and it is possible that more are hidden by the reflected peristome. Aperture broadly oval; peristome double, the outer broadly expanded, of about the same width all around and adnate to the preceding turn at the parietal wall, marked by concentric lines of growth; the inner peristome is rather strong, slightly exserted and slightly reflected. Operculum typically licinid.

The type (U.S.N.M. No. 425686) has 6.4 whorls and measures: Height, 22.0 mm.; greater diameter, 13.5 mm.; lesser diameter, 10.8 mm. It was collected by W. J. Eyerdam in debris under rocks at Pestel, Haiti.

U.S.N.M. No. 380350 contains 17 topotypes.

This species is easily differentiated from the rest by its feeble sculpture.

LICINA GIMBIENSIS, new species

PLATE 18, FIGURE 3

Shell elongate-ovate, pale buff; peristome white. Nuclear whorls 2, well rounded, forming a small apex slightly flattened at the tip. Postnuclear whorls inflated, strongly rounded, the early ones marked by rather distantly spaced, rather strong axial ribs, which on the last turn become expanded and rounded. Of these axial ribs 157 are present on the last whorl. On the early whorls the spiral sculpture is also fairly well developed; on the last it is merely indicated. Here we see 16 spiral threads between the summit and the periphery. The summit of the whorls is slightly flattened, rendering the suture rather conspicuous. Periphery strongly rounded. Base short, inflated, strongly rounded, broadly openly umbilicated, and marked by the continuation of the axial ribs, which pass also over the umbilical wall. On the base 13 spiral cords are present between the periphery and the edge of the umbilicus. Those near the umbilicus are stronger than the rest. On the umbilical wall 18 or more rather strong spiral cords are present. Aperture broadly ovate; peristome double, the outer rather flaringly expanded, forming a slight auricle at the posterior angle and marked by concentric lamellae; the inner moderately exserted and appressed to the outer. Operculum typically licinid.

The type (U.S.N.M. No. 401966) was collected by C. R. Orcutt on the east side of the River Gimbi near Saltrou, Haiti; it is a complete specimen of 7.1 whorls and measures: Height, 33.2 mm.; greater diameter, 22.3 mm.; lesser diameter, 15.5 mm.

U.S.N.M. No. 401988 contains 29 topotypes.

U.S.N.M. No. 402426 contains 2 specimens collected by Orcutt near Saltrou.

LICINA MICHELENSIS, new species

PLATE 19, FIGURE 1

Shell of turbinid outline, flesh-colored, with interrupted spiral bands of brown; the elements making up these bands are arranged in both axial and spiral series. Five of these spiral bands are present between the summit and the periphery and two on the base. Nuclear whorls 2, well rounded, microscopically granulose, forming a small apex. Postnuclear whorls inflated, strongly rounded, appressed at the summit, and marked by retractively curved axial riblets, of which 151 are present on the last whorl. The spiral sculpture consists of threads about as strong as the axial ribs, 19 of which are present between the summit and periphery on the last turn, and 15 on the base, and 17 on the umbilical wall. The junctions of the axial ribs and spiral threads form minute nodules. Suture strongly constricted. Periphery inflated, well rounded. Base short, strongly rounded, very openly umbilicated. Both base and umbilical wall are also marked by the continuation of the axial riblets. The last whorl is solute for about one-fifth of a turn. Aperture very broadly ovate; peristome double, the outer rather broadly expanded, narrower on the parietal wall than on the rest, somewhat fluted and rayed with a brown band; the inner, strongly exserted and slightly reflected. Operculum typically licinid.

The type (U.S.N.M. No. 379883) was collected by A. J. Poole at St. Michel, Haiti. It is a complete specimen having 6 whorls and measures: Height, 14.5 mm.; greater diameter, 11.8 mm.; lesser diameter, 8.7 mm.

The turbinid outline will readily distinguish this from the other licinids.

U.S.N.M. No. 529395 contains 74 topotypes.

U.S.N.M. No. 365266 contains 5 topotypes collected by Gerrit S. Miller, Jr.

U.S.N.M. No. 504078 contains 11 specimens collected by Mr. Poole in a cave 1 mile northwest of St. Michel.

U.S.N.M. No. 504077 contains 80 specimens collected by Mr. Poole in a cave at the L'Atalaye Plantation 3 miles west of St. Michel.

U.S.N.M. No. 364094 contains 30 specimens collected by E. C. Leonard at the foothills of the mountain west of the village of St. Raphael.

U.S.N.M. No. 504080 contains 11 specimens collected by Mr. Poole in a cave north of St. Michel.

LICINA CAYEMITENSIS, new species

Plate 19, Figure 2

Shell elongate-ovate, the early whorls plum colored, the later brown; tip pale. Nuclear whorls 2, well rounded, microscopically granulose, forming a minute apex. Postnuclear whorls moderately well rounded, narrowly shouldered, and marked by retractively curved axial riblets, which are strongest and more distantly spaced on the early whorls and become weaker and more closely approximated on the later turns. Of these axial riblets, 194 are present on the last whorl. They extend over the base and feebly upon the umbilical wall. The spiral sculpture consists of slender threads that are weaker than the axial ribs; of these, 16 are present between the summit and the periphery of the last whorl, 12 on the base, and 20 on the umbilical wall. The spiral threads on the base and umbilicus are stronger than those on the spire. The junctions of the axial ribs and the spiral threads form feeble nodules on the early turns and weaker ones on the remainder. Suture narrowly, deeply channeled. Periphery strongly rounded. Base moderately long, well rounded, openly umbilicated. Aperture oval; peristome double, the outer narrowly expanded and rather thickened and slightly reflected, marked by concentric lines of growth and adnate to the preceding turn at the parietal wall; the inner, somewhat thickened, slightly exserted and reflected. Operculum typically licinid.

The type (U.S.N.M. No. 504081) comes from Grande Cayemite Island, Haiti; it has 5.5 whorls remaining and measures: Height, 25 mm.; greater diameter, 14.9 mm.; lesser diameter, 12.0 mm.

U.S.N.M. No. 380329 contains 286 topotypes.

LICINA EVOLUTA (Reeve)

PLATE 18, FIGURE 7

1786. *?Turbo Licina magna* MARTINI-CHEMNITZ, Conchylien Cabinet, vol. 9, p. 56, pl. 123, figs. 1061, 1062.
1842. *Cyclostoma evolutum* REEVE, Conchologia systematica, vol. 2, p. 99, pl. 85, fig. 18.
1847. *Cyclostoma subasperum* SOWERBY, Thesaurus conchyliorum, vol. 1, p. 142, pl. 28, fig. 159.

Shell gigantic, chestnut-brown, with axial and spiral lines of bluish white, which are more or less distributed in varicial streaks. The slight tubercles are also inclined to be white. Interior of the aperture and peristome brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, appressed at the summit, and marked by slender, closely spaced, retractively curved axial riblets, of which 388 are present on the last whorl. The spiral sculpture consists of threads a little stronger than the axial ribs. Of these, 29 are present on the last turn between the summit and the periphery, 12 on the base, and 21 on the umbilical wall. Those on the umbilical wall are materially stronger than those on the base and spire. The junctions of the axial ribs and spiral threads form slender tubercles that have their long axis parallel with the axial sculpture. Suture moderately well constricted. Periphery inflated, strongly rounded. Base moderately long, openly broadly umbilicated. The last whorl solute for about one-tenth of a turn. Aperture very broadly oval; peristome double, the outer moderately expanded on the outer and basal lip, more so on the inner lip and narrower at the parietal wall; the inner reflected and appressed to the outer. Operculum?

The specimen described and figured, one of 2 collected by Eyerdam (U.S.N.M. No. 380333), comes from Pestel, Haiti. It has 5 whorls remaining and measures: Height, 39.3 mm.; greater diameter, 25.8 mm.; lesser diameter, 21.0 mm.

Though we do not have the operculum, all the features proclaim this to be a *Licina*.

LICINA LABEO (Müller)

PLATE 18, FIGURE 2

1685. *Buccinum umbilicatum* LISTER, Historiae sive synopsis methodicae conchyliorum, pt. 1, pl. 25, fig. 23.
1774. *Nerita labeo* MÜLLER, Vermium terretrium et fluviatilum, vol. 2, pp. 180–181.

Shell large, pale reddish brown, chestnut-brown on the early turns, paler on the last. On the last there are axial dark varicial streaks; peristome and interior of aperture white. Nuclear whorls? Postnuclear whorls well rounded, narrowly shouldered at the summit, and marked by almost vertical axial riblets, of which 202 are present on the last turn. The spiral sculpture consists of threads a little stronger than the axial ribs, of which 20 are present between the summit and the periphery, 15 on the base, and 16 on the umbilical wall. The junctions of the axial ribs and spiral threads form oval nodules whose long axis is parallel with the axial sculpture. Suture narrowly channeled, rendered crenulated by the axial ribs at the summit. Periphery inflated, well rounded. Base openly umbilicated. The last whorl solute for about one-third of a turn. Aperture broadly oval; peristome double, the outer moderately strongly expanded, of about the same width except on the parietal wall where it is narrow; the inner strongly expanded and reflected over the outer, with which it coincides on the outer and basal lip. Operculum with the nucleus halfway between marginal and central having a very fragile pseudolamella, which does not extend to the outer reaches of the whorls of the basal chondroid plate and which shows the connecting riblets between the basal chondroid plate and the pseudolamella.

The specimen described and figured (U.S.N.M. No. 504082) is one collected by Eyerdam about one-half mile north of Miragoane, Haiti. It has 4 whorls remaining and measures: Height, 33.4 mm.; greater diameter, 21.6 mm.; lesser diameter, 16.0 mm. In measurements and general form this specimen coincides well with the original figure and description of *labeo*.

A second specimen (U.S.N.M. No. 504083), also collected by Eyerdam 1 mile north of Miragoane, shows in the peristome formation even a closer resemblance to the original figure of *labeo*. It has 4.5 whorls remaining and measures: Height, 37.7 mm.; greater diameter, 25.5 mm.; lesser diameter, 18.8 mm.

SALLEPOMA, new genus

Shell varying from elongate-ovate to cylindroconic. Nuclear whorls about 2, microscopically granulose. Postnuclear whorls marked by axial ribs, which vary greatly in strength in the different species. The spiral sculpture is restricted to the umbilicus. Aperture ovate; peristome double, the outer very broadly expanded. Operculum with a pseudolamella.

Type species: *Cyclostoma ambigua* Lamarck = *Sallepoma ambiguum* (Lamarck).

KEY TO THE SPECIES OF SALLEPOMA[18]

Axial ribs distantly spaced.	
Shell elongate-ovate	ambiguum
Shell elongate-conic	corailense
Axial ribs not distantly spaced.	
Last whorl solute	vachense
Last whorl not solute.	
Suture strongly constricted	occidentale
Suture not strongly constricted	pulchellum

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[18] *Sallepoma mutabile* is not included; see information under that species.

SALLEPOMA AMBIGUUM (Lamarck)

PLATE 19, FIGURE 4

1822. *Cyclostoma ambigua* LAMARCK, Histoire naturelle des animaux sans vertèbres, vol. 6, pt. 2, p. 145.
1841. *Cyclostoma interruptum* DELESSERT, Recueil de coquilles . . ., pl. 29, fig. 2. (Not *C. interruptum* Lamarck.)
1850. *Choanopoma ambigua* GRAY, Nomenclature of molluscous animals and shells in the collection of the British Museum, pt. 1: Cyclophoridae, p. 50, No. 9.
1852. *Cistula? ambigua* PFEIFFER, Monographia pneumonopomorum viventium, p. 271.
1862. *Cyclostoma albescens* WEINLAND, Malak. Blätter, vol. 9, p. 87.
1891. *Tudora ambigua* CROSSE, Journ. Conchyl., vol. 39, p. 177.
1920. *Chondropoma (Chondropomium) ambigua* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 60.

Shell elongate-ovate, yellowish white, with interrupted spiral bands of brown, of which four are present between summit and periphery and five on the base. These bands show the interior of the aperture but do not ray the aperture. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose, forming a rather small apex. Postnuclear whorls well rounded, narrowly shouldered at the summit, and marked by strong, almost lamellar axial ribs, which become somewhat expanded at the summit and render the suture decidedly crenulated. Of these ribs, 24 occur on the last whorl. In addition to these strong axial ribs, there are occasional finer axial threads present. These, however, are not regularly distributed but occur only occasionally and may appear singly or several of them grouped in an intercostal space. Suture well constricted. Periphery well rounded. Base moderately long, well rounded, microscopically broadly openly umbilicated, and marked by the continuation of the axial ribs which also extend on the umbilical wall. The umbilical wall has three moderately strong spiral cords that render the axial ribs somewhat scalloped at their junction. Aperture oval; peristome double, the outer broadly flaringly expanded, widest at the junction of the inner and basal lip and narrowest at the parietal wall, decidedly auriculated at the posterior angle and marked by concentric lamellae; inner peristome exserted and slightly reflected. Operculum typically sallepomid.

The specimen figured (U.S.N.M. No. 504043), one of five, comes from 5 miles west of Jérémie, Haiti. It has 4.5 whorls remaining and measures: Height, 19.7 mm.; greater diameter, 12.1 mm.; lesser diameter, 9.3 mm.

This species, of which we have a large series from many stations, ranges from Jérémie west to Trou Bonbon.

U.S.N.M. No. 504054 contains 55 specimens collected by Henderson and Bartsch at Jérémie.

U.S.N.M. No. 504047 contains 66 specimens collected by Henderson and Bartsch on the bluffs west of Jérémie.

U.S.N.M. No. 504052 contains 38 specimens collected by Henderson and Bartsch on the shore cliffs at Jérémie.

U.S.N.M. No. 403061 contains 357 specimens collected by Orcutt west of Jérémie.

U.S.N.M. No. 425511 contains 297 specimens collected by Henderson and Bartsch in debris from the foot of an inland elevated coral cliff at Jérémie.

U.S.N.M. No. 403058 contains 2 specimens collected by Orcutt near the sea half a mile from the first village west of Jérémie.

U.S.N.M. No. 504050 contains 9 specimens collected by Henderson and Bartsch at Anse à Cochon.

U.S.N.M. No. 504053 contains 6 specimens collected by Henderson and Bartsch at the second river south of Jérémie.

U.S.N.M. No. 533168 contains 79 specimens collected by W. C. Woodring 1.8 miles west of Jérémie at the foot of a cliff at the rear of the coastal terrace at about 100 foot altitude.

U.S.N.M. No. 383232 contains 2 specimens collected by Orcutt at Jérémie.

U.S.N.M. No. 504046 contains 2 specimens collected by Henderson and Bartsch at Debarras.

U.S.N.M. No. 402662 contains 11 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

U.S.N.M. No. 402904 contains 23 specimens collected by Orcutt east of Trou Bonbon.

SALLEPOMA CORAILENSE, new species

PLATE 20, FIGURE 3

Shell elongate-conic, pale yellow, with almost continuous spiral bands of brown, of which three are present between the summit and periphery and two on the base. Nuclear whorls decollated in all our specimens. Postnuclear whorls very narrowly shouldered, well rounded, and marked by rather strong sublamellar axial ribs, of which 33 occur on the last turn. In addition to the axial ribs, finer threads occur between the strong lamellose elements but not regularly; there may be one or two of these in an intercostal space. Suture well constricted. Periphery well rounded. Base moderately long, narrowly umbilicated, and marked by the continuation of the axial ribs extending very much diminished over the umbilical wall, which also bears two spiral threads near its outer margin. Aperture oval; peristome double, the outer very broadly expanded at the junction of the basal and inner lip, less so on the outer and parietal wall, forming an auricle at the posterior angle; the inner is slightly exserted and thickened and reflected over and adnate to the outer. Operculum typically sallepomid.

The type (U.S.N.M. No. 504057) comes from Corail, Haiti. It has 4.6 whorls remaining and measures: Height, 14.7 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.0 mm.

SALLEPOMA VACHENSE, new species

PLATE 20, FIGURE 4

Shell very elongate-ovate, pale yellow, with narrow interrupted spiral bands of brown, the elements of which are arranged in both axial and spiral series. Of these, six are present between summit and periphery and three on the base. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, slightly shouldered at the summit, and marked on the early whorls by slender axial riblets, which become broad and round on the last turn. Sixty of these are present on the last whorl. Suture well constricted. Periphery well rounded. Base moderately long, well rounded, decidedly openly umbilicated, and marked by the continuation of the axial ribs, which extend over the umbilical wall; the latter bears six spiral threads. The last whorl is solute for about one-fifth of a turn. Aperture oval; peristome double, the outer moderately broadly expanded, widest at the junction of the basal and outer lip and at the auricle at the posterior angle and narrowest on the parietal wall; the inner strongly exserted and slightly reflected. Operculum typically sallepomid.

The type (U.S.N.M. No. 504058) was collected by Orcutt at Île à Vache, Haiti. It has 3.3 whorls remaining and measures: Height, 12.8 mm.; greater diameter, 7.3 mm.; lesser diameter, 6.3 mm.

U.S.N.M. No. 442863 contains 2 topotypes, which vary widely in measurements from the type. I therefore also cite these:

Number of whorls	Height	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
4.5	16.2	8.5	7.0
4.0	10.8	6.3	5.2

SALLEPOMA OCCIDENTALE, new species

Shell elongate-ovate, pale yellow, marked by interrupted spiral bands of brown on spire and base. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, very narrowly shouldered at the summit, and marked by almost vertical, retractively curved axial riblets, which vary decidedly in strength in the two subspecies. Suture strongly constricted. Periphery well rounded. Base moderately long, openly umbilicated, and marked by the continuation of the axial ribs, which extend feebly over the umbilicus that bears several spiral threads. Aperture broadly oval; peristome double, the outer flaringly expanded, broadest at the junction of the inner and basal lip and at the auricle at the posterior angle; narrowest at the parietal wall; the inner is moderately exserted and reflected. Operculum typically sallepomid.

I am recognizing two subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF SALLEPOMA OCCIDENTALE

Axial ribs strong.. **cayemiticolum**
Axial ribs not strong.. **occidentale**

SALLEPOMA OCCIDENTALE CAYEMITICOLUM, new subspecies

Plate 20, Figure 1

This subspecies comes from Grande Cayemite Island, Haiti. It differs from *S. o. occidentale* in having the axial ribs much more strongly developed and in having the lamellae of the peristome much stronger. It has four interrupted spiral bands of brown between the summit and the periphery and three on the base and bears 136 axial ribs on the last turn and three spiral threads at the outer edge of the umbilicus.

The type (U.S.N.M. No. 380313) has 4.3 whorls remaining and measures: Height, 14.4 mm.; greater diameter, 9.3 mm.; lesser diameter, 6.9 mm.

SALLEPOMA OCCIDENTALE OCCIDENTALE, new subspecies

Plate 20, Figure 2

This subspecies C. R. Orcutt collected between Anse du Clerc and Trou Bonbon, Haiti. It differs from *Sallepoma occidentale cayemiticolum* in having the ribs almost obsolete and the spiral brown bands more continuous and less broad on the spire. The subperipheral band on the base is very broad and continuous. There are also two feeble color lines between this and the umbilicus. The umbilical wall bears two spiral threads.

The type (U.S.N.M. No. 504059) has 115 axial ribs on the last whorl. It has 4.4 whorls remaining and measures: Height, 13.7 mm.; greater diameter, 7.9 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 504060 contains 3 topotypes from the same source.

SALLEPOMA PULCHELLUM, new species

Shell ovate, pale yellow, with interrupted, almost confluent, spiral bands of brown. Nuclear whorls 2, well rounded, microscopically granulose, forming a small apex. Postnuclear whorls strongly rounded, narrowly shouldered at the summit, and marked by rather closely spaced, slightly retractively curved, axial riblets. Suture not strongly constricted. Periphery well rounded. Base rather long, moderately broadly openly umbilicated, the umbilicus bearing two spiral threads. Aperture broadly oval; peristome double, the outer strongly expanded at the junction of the inner and basal lip, forming a decided auricle at the posterior angle; it is narrow on the parietal wall, which is adnate to the preceding turn and also on the outer lip, and is marked by concentric laminae; the inner is moderately exserted and reflected. Operculum typically sallepomid.

The species breaks up into two subspecies, which the following descriptions and key will help to differentiate:

KEY TO THE SUBSPECIES OF SALLEPOMA PULCHELLUM

Shell large and stout	**pulchellum**
Shell small and slender	**bonbonense**

SALLEPOMA PULCHELLUM PULCHELLUM, new subspecies

Plate 20, Figure 5

This subspecies, which ranges from Jérémie to Trou Bonbon, Haiti, differs from *S. p. bonbonense* in having the axial ribs much narrower and more strongly developed. Of these, 155 are present on the last whorl in the type; they are closely spaced and separated by mere impressed lines.

The type (U.S.N.M. No. 504061) is a complete specimen and comes from Jérémie. It has 7.5 whorls and measures: Height, 22.3 mm.; greater diameter, 11.2 mm.; lesser diameter, 8.9 mm.

U.S.N.M. No. 504062 contains 55 topotypes from the same source.

U.S.N.M. No. 420660 contains 13 specimens collected by Orcutt east of Trou Bonbon.

U.S.N.M. No. 425381 contains 65 specimens collected by Orcutt between Anse du Clerc and Trou Bonbon.

SALLEPOMA PULCHELLUM BONBONENSE, new subspecies

Plate 20, Figure 6

This subspecies ranges from Abricots to Trou Bonbon, Haiti. It differs from *S. p. pulchellum* in being smaller and in having the ribs much more distantly spaced and much less strongly developed.

The type (U.S.N.M. No. 504065) was taken between Anse du Clerc and Trou Bonbon and has a little more than 4 whorls remaining, which bear 113 axial ribs on the last whorl. It measures: Height, 17.0 mm.; greater diameter, 11.6 mm.; lesser diameter, 7.9 mm.

U.S.N.M. No. 401947 contains 40 topotypes from the same source.

U.S.N.M. No. 401719 contains 4 specimens collected by Orcutt east of the Rivière des Abricots on a limestone hill near the mouth of Trou Sardines.

SALLEPOMA MUTABILE, new species

Plate 22

Shell varying from elongate-ovate to elongate-conic in outline. In color it may be white, pale yellow, pale orange, or even purplish brown;

it may be unicolor or variously banded with interrupted or almost continuous spiral bands of brown. Nuclear whorls about 2, well rounded, microscopically granulose, forming a small apex. The postnuclear whorls vary considerably in the amount of rotundity and also in the degree of shouldering at the summit. They are enormously variable in the number of axial ribs and in their development, which varies from depressed-rounded to acutely lamellar. The last whorl may be adnate or solute, and the size of the umbilicus varies with that characteristic. The umbilical wall bears threads of varying number as the table will show. In the 10 specimens selected they vary from three to seven. The aperture is oval; the peristome is double, the outer appressed at the junction of the inner and basal lip and at the auricle at the posterior angle, narrowest on the parietal wall. Operculum typically sallepomid.

I am figuring the 10 specimens referred to above.

Specimen	No. of whorls	Axial ribs on—		Length	Greater diameter	Lesser diameter
		Last whorl	Umbilicus			
				Mm.	*Mm.*	*Mm.*
1	4.3	102	5	21.0	11.0	9.7
2[1]	4.3	61	6	17.9	10.0	8.0
3	3+	120	4	14.8	9.8	8.5
4	4+	103	4	16.1	9.6	7.6
5	4.1	77	3	14.3	7.8	6.4
6	3.9	69	5	13.3	7.4	6.4
7	3.5	79	5	11.8	6.7	5.8
8	3.8	96	4	12.3	6.7	6.0
9	7.0	53	7	12.5	6.6	5.7
10	6.2	64	3	9.4	5.8	4.6

[1] Type.

The type (U.S.N.M. No. 504066), selected from a series of 715 topotypes (U.S.N.M. No. 402598), from the same source, comes from near the sea at the first hill east of Saltrou, Haiti, and is No. 2 of the accompanying table.

U.S.N.M. No. 402440 contains 34 specimens collected by Orcutt at the cliffs by the sea east of Saltrou.

U.S.N.M. No. 402571 contains 8 specimens collected by Orcutt east of Saltrou.

U.S.N.M. No. 402034 contains 43 specimens collected by Orcutt on the plain north of Saltrou.

U.S.N.M. No. 402100 contains 11 specimens collected by Orcutt between Bodarie and Saltrou.

U.S.N.M. No. 402628 contains 3 specimens collected by Orcutt at Gimbi River near Saltrou.

U.S.N.M. No. 401995 contains 6 specimens collected by Orcutt on the east side of Gimbi River.

I have excluded this species from the key, for under the name *Sal-*

lepoma mutabile I have described a complex occupying the region about Saltrou, which is situated on the south coast near the eastern limit of Haiti. This complex appears exceedingly abundant in this region, at least the hundreds of specimens before me collected by Orcutt would indicate this. It is exceedingly variable, both in size and sculpture, the latter covering details of all the species here described under *Sallepoma.* There is a possibility that we are here dealing with a hybridization product resembling the results I have obtained in my breeding of Cerions, which also produced an endless number of mutations. The 10 specimens figured show the major variants and will delineate the problem better than words.

Genus CLYDONOPOMA Pilsbry

1933. *Clydonopoma* PILSBRY, Proc. Acad. Nat Sci. Philadelphia, vol. 85, p. 127.

Shell varying from elongate-ovate to turbinid in outline. Postnuclear whorls marked by almost vertical axial ribs, which extend over the base and umbilical wall. The spiral sculpture may be confined to the umbilicus (subgenus *Clydonopoma)* or there may be indications of a couple of spiral threads near the summit of the turns. Suture narrowly channeled. Base openly umbilicated. Last whorl solute. Peristome double, the outer narrowly expanded. Operculum with a pseudolamella.

Type species: *Clydonopoma nobile* (Pfeiffer).

KEY TO THE SUBGENERA OF CLYDONOPOMA

Spiral sculpture confined to umbilical wall........................**Clydonopoma**
Spiral sculpture not confined to umbilical wall; axial ribs with a few feeble nodules near summit.......................... **Eccritopoma**

Subgenus CLYDONOPOMA Pilsbry

Clydonopomas having an ovate outline and the spiral sculpture confined to the umbilical wall.

Type species: *Tudora nobilis* Pfeiffer = *Clydonopoma (Clydonopoma) nobile* (Pfeiffer).

CLYDONOPOMA (CLYDONOPOMA) NOBILE (Pfeiffer)

PLATE 21, FIGURE 3

1852. *Tudora nobilis* PFEIFFER, Monographia pneumonopomorum viventium, p. 252.
1854. *Cyclostoma nobile (Tudora)* PFEIFFER, Proc. Zool. Soc. London, 1852, p. 142, pl. 13, fig. 2.
1920. *Chondropoma (Chondropomium) nobilis* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 60.
1933. *Parachondria (Clydonopoma) nobilis* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 127–128, pl. 6, figs. 14, 16–19.

Shell large, very regularly elongate-ovate, white, with faint interrupted spiral bands of brown, the elements of which are arranged in both axial and spiral series. Of these bands six are present between the summit and the periphery. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, rather broadly shouldered at the summit, and marked by slender, retractively curved axial riblets, of which 200 are present on the last whorl in the specimen figured. These riblets become expanded into slight auricles at the summit, which they minutely denticulate. Suture rather strongly channeled. Periphery inflated, strongly rounded. Base moderately long, openly umbilicated, and marked by the continuation of the axial ribs, which extend over the umbilical wall. The latter bears 14 rather strong spiral threads, which render the axial riblets slightly scalloped. The last whorl is solute for about one-tenth of a turn. Aperture oval; peristome double, the outer very narrowly expanded, a little broader at the junction of the basal and inner lip and also at the posterior angle where it forms a slight auricle. At the parietal wall and the posterior portion of the outer lip it is very narrow; the outer peristome is marked by concentric lines of growth; the inner peristome is strongly exserted and reflected, wider than the outer on the outer lip. Operculum with very strong lamellar, retractively curved ribs, which on the inner half of the turns become fused at their outer edge but still maintain their individuality. On the outer half they are decidedly distinct, but the extreme outer edge again becomes fused. This gives to the lamellation of the operculum a sort of 3-stage appearance, a narrow separate channel between the turns, a pseudolamella on the inner half and distinct lamellation on the outer half.

The specimen figured (U.S.N.M. No. 504067) is one received from Cuming from the Dominican Republic. It has 5.5 whorls remaining and measures: Height, 27.3 mm.; greater diameter 17.3 mm.; lesser diameter, 14.8 mm.

A second specimen (U.S.N.M. No. 529453) was received from Fulton, and a third (U.S.N.M. No. 504068) was collected by Dr. Abbott in the Barahona District. All three of these are without operculum. The operculum that I have described is from Dr. Pilsbry's specimens collected at Mr. Hermann's coffee finca on a hill beyond Paradis, a town on the coast south of Barahona, Dominican Republic.

Subgenus Eccritopoma Pilsbry

1933. *Eccritopoma* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 128.

Clydonopomas of turbinid outline and having a few spiral threads near the summit of the turns in addition to those of the umbilical wall.

Type species: *Parachondria peasei* Pilsbry = *Clydonopoma (Eccritopoma) peasei* (Pilsbry).

CLYDONOPOMA (ECCRITOPOMA) PEASEI (Pilsbry)

Plate 21, Figure 2

1933. *Parachondria (Eccritopoma) peasei* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 128–129, pl. 6, figs. 5–7.

Shell of turbinid outline, thin, with the extreme nuclear tip white, the three succeeding whorls brown and the rest pale yellow, marked by varicial streaks and vermiculations of brown; peristome pale brown, the interior of the aperture showing the external markings. Nuclear whorls 2.2, well rounded, microscopically granulose, forming a small apex. Postnuclear whorls narrowly shouldered at the summit, inflated, strongly rounded, and marked by closely spaced, rounded axial ribs, which become slightly expanded at the summit into minute auricles that crenulate the suture. Of these ribs, 230 are present on the last whorl. They extend rather strongly over the very broadly openly umbilicated base and a little more attenuated over the umbilical wall. The spiral sculpture consists of six feeble threads near the summit, which become consecutively less strong from the summit anteriorly. There are 13 spiral threads on the umbilical wall and the outer portion of the umbilicus. These are strong and well rounded and render their junction with the axial riblets slightly roundly scalloped. Last whorl slightly solute. Aperture very broadly oval; peristome double, the outer narrowly expanded, a little broader at the junction of the basal and inner lip and at the slight auricle at the posterior angle; the inner rather strongly exserted and reflected, coextensive but distinct from the outer on the outer lip. The operculum is marked with strong, retractively curved, closely approximated, decidedly elevated lamellae, which become fused to form a pseudolamella at their free border. The first portion does not cover the entire whorl but only a portion thereof; the outer portion shows the lamellae distinct. While the lamellae extend well toward the outer edge of the basal chondroid plate, they become decidedly attenuated and thus give a 3-stage effect, a groove between the whorls, a pseudolamella, and the outer free lamellated portion.

The specimen described and figured (U.S.N.M. No. 426043) is a paratype received from Dr. Pilsbry. It comes from Sr. Del Monte's plantation, 5 or 6 miles west of Barahona, Dominican Republic, in a verdant gully near Salvation at about 3,000 feet elevation.

Subfamily ANNULARIINAE Henderson and Bartsch

1920. Annularinae HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 71.

Shell ranging in form from depressed-helicoid to elongate-conic. The axial sculpture may be almost obsolete or it may consist of strong ribs or many slender lamellae, which may or may not be gathered into tufts at the summit. The spiral sculpture may be absent, confined to the umbilicus, or cover spire and base. In strength the spiral sculpture varies from fine threads to strong cords. Breathing devices are present in some groups and absent in others. They range from a mere notch or slit puncture to a pore with external siphon. The operculum may be flat or convex on the outside, provided with a calcified lamella, which rises from the inner edge of the whorls. This lamella may be vertically placed upon the basal plate or it may be obliquely situated or reflected to parallel the basal plate. It may be almost smooth or ribbed.

Type genus: *Annularia* Schumacher.

KEY TO THE GENERA OF THE SUBFAMILY ANNULARIINAE OF HISPANIOLA

Opercular lamella reflected to join that of succeeding turn, thus forming a continuous surface.
Shell helicoid .... **Petasipoma**
Shell ovate .... **Colobostylus**
Opercular lamella not reflected to join that of succeeding turn, thus not forming a continuous surface.
Shell helicoid or depressed-helicoid.
Spiral sculpture absent .... **Rolleia**
Spiral sculpture not absent.
Outer peristome of inner lip with a deep sinus .... **Lagopoma**
Outer peristome of inner lip without a deep sinus ... **Abbottella**
Shell not helicoid or depressed-helicoid.
Shell of turbinid outline .... **Eyerdamia**
Shell of not turbinid outline, ovate or elongate-conic.
Intercostal spaces marked by microscopic spiral lines .... **Weinlandipoma**
Intercostal spaces not marked by microscopic spiral lines.
Axial ribs fused into tufts at summit .... **Troschelvindex**
Axial ribs not fused into tufts at summit ... **Christophipoma**

PETASIPOMA, new genus

Shell helicoid, whorls strongly rounded, marked by both axial ribs and spiral threads. The intersection of the axial ribs and spiral threads form conspicuous, almost sharp nodules. Base broadly, widely umbilicated, the umbilical wall marked like the spire. Aperture circular; peristome double. Operculum with central nucleus, bearing the strong convex lamella whose outer edge touches and fuses with that of the succeeding turn. On the last whorl, however, the basal chondroid plate projects somewhat beyond the lamella. The lamella is marked by fine, retractively slanting hairlines.

Type species: *Petasipoma bombardopolense,* new species.

PETASIPOMA BOMBARDOPOLENSE, new species

Plate 21, Figures 4–6

Shell helicoid, wax-colored. Nuclear whorls 2, small, inflated, strongly rounded, forming a rather conspicuous apex. Postnuclear whorls strongly rounded and marked by sublamellar axial ribs, between which a number of finer hairlike threads are present. Of the strong axial ribs, 55 are present on the last turn. The spiral sculpture consists of weak cords that at their junction with the axial ribs render these conspicuously nodulose, the nodules being oval with their long axis parallel with the ribs. Of these nodules, four are present on the first turn and seven on the second and the last turn between summit and periphery. On the last whorl the nodules at the summit become intensified. Suture narrowly channeled. Periphery inflated, well rounded. Base strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs and six spiral cords. The axial ribs extend somewhat weakened upon the umbilical wall which also bears seven spiral cords. Aperture circular; peristome double, the inner quite strongly exserted; the outer expanded, forming an auricle at the posterior angle, and a little wider on the outer than on the inner lip, narrowest on the parietal wall. Operculum too large to be withdrawn into the shell. It caps the aperture. It has a central nucleus, and bears a strongly convex thin lamella whose outer edge touches that of the succeeding turn. The lamella is marked by fine, retractively curved hairlines.

The type (U.S.N.M. No. 504085) was collected in the crevices of rocks in a ravine a little west of Bombardopolis, Haiti, by Mr. and Mrs. E. C. Leonard. It has 4.9 whorls and measures: Height, 6.5 mm.; greater diameter, 7.1 mm.; lesser diameter, 6.2 mm.

U.S.N.M. No. 504086 contains 171 topotypes from the same source.

Genus COLOBOSTYLUS Crosse and Fischer

1888. *Colobostylus* Crosse and Fischer, Journ. Conchyl., vol. 36, p. 229.

Shell ovate, axial ribs present, spiral sculpture absent. Operculum with a strongly calcified lamella, which is reflected to parallel the basal chondroid plate. The lamella of the succeeding turns is in contact with that of the preceding whorls, thus completely covering the outside of the operculum excepting the outer edge of the chondroid plate on the last whorl where this projects materially beyond the edge of the lamella. The lamella is marked by retractively slanting axial threads.

Type species: *Colobostylus jayanus* (C. B. Adams), selected by Dall, 1905, Proc. Malac. Soc. London, vol. 6, p. 209, 1905.

Typical *Colobostylus* is not known from Hispaniola. Here it is replaced by the subgenus *Colobostyloides*.

Colobostyloides, new subgenus

Shell small, ovate, openly umbilicated, ornamented with axial ribs only. Aperture with double peristome. The operculum is too large to be withdrawn within the aperture, but caps this. It consists of a basal chondroid plate and a strongly calcified lamella, which is reflected to parallel the basal plate. The adjacent turns of the lamella touch, thus forming a continuous outer surface; they are marked by retractively curved raised threads.

Type species: *Cyclostoma saxorum* Weinland = *Colobostylus (Colobostyloides) saxorum* (Weinland).

The absence of the flaring outer peristome and the development of the axial ribs into strong denticles, as well as entirely different shape, easily differentiate this from typical *Colobostylus*, a Jamaican group with which it appears most nearly affined.

COLOBOSTYLUS (COLOBOSTYLOIDES) SAXORUM (Weinland)

PLATE 21, FIGURE 1

1862. *Cyclostoma saxorum* WEINLAND, Malak. Blatter, vol. 9, p. 88.
1888. *Colobostylus saxorum* CROSSE and FISCHER, Journ. Conchyl., vol. 36, p. 234.

Shell ovate, when truncated almost pupiform. Nuclear whorls decollated in all our specimens. Postnuclear whorls strongly rounded and marked by strong, narrow, somewhat retractively slanting axial ribs, which are expanded into auricles at the summit. Of these ribs, 100 are present on the last whorl in the specimen figured. Suture slightly channeled. Periphery well rounded. Base narrowly openly umbilicated and marked by the continuation of the axial ribs, which extend also over the umbilical wall. Aperture almost circular; peristome double, the inner somewhat exserted and slightly reflected; the outer moderately expanded, somewhat auriculated at the posterior angle where it is a little wider than the rest, which is of uniform width. Operculum large—too large to be withdrawn within the aperture, with the nucleus halfway between marginal and central. The whorls of the operculum bear a lamella whose outer edge touches that of the succeeding turn thus forming a continuous surface. The lamella is marked by fine, retractively curved hairlines.

The specimen figured (U.S.N.M. No. 425692) is one of 2 cotypes received from the Senckenbergisches Museum. It has 3.4 whorls remaining and measures: Height, 7.2 mm.; greater diameter, 5.0 mm.; lesser diameter, 4.8 mm. The type was described from Jérémie, Haiti.

U.S.N.M. No. 380328 contains 13 specimens collected by W. J. Eyerdam on a rock pile 3 miles north of Pestel, Haiti.

Genus ROLLEIA Crosse

1891. *Rolleia* CROSSE, Journ. Conchyl., vol. 39, pp. 162–163.

Shell decidedly depressed-helicoid, with the last whorl decidedly solute. Whorls strongly rounded, marked by axial ribs only. Base very broadly umbilicated. Aperture circular; peristome double. Operculum with a thin calcified lamella which rises slightly obliquely then bends more rapidly at the outer third. The whorls of the lamella are separated by a broad space which is also slightly calcified and is crossed by distantly spaced axial riblets.

Type species: *Cyclotus martensi* Maltzan = *Rolleia martensi* (Maltzan).

KEY TO THE SPECIES OF ROLLEIA

Axial ribs very closely spaced.................................. martensi
Axial ribs not very closely spaced.............................. haitensis

ROLLEIA MARTENSI (Maltzan)

PLATE 23, FIGURES 4–6

1888. *Cyclotus martensi* MALTZAN, Nachr. deutschen malak. Ges., vol. 20, p. 179.
1891. *Rolleia martensi* CROSSE, Journ. Conchyl., vol. 39, pp. 163–164, pl. 2, fig. 4.

Shell very depressed-helicoid, almost lenticular, with the last whorl decidedly solute and deflected, wax-yellow, and marked by interrupted spiral lines of brown which vary materially in size and spacing; the elements composing them also have an axial arrangement. Nuclear whorls 1.9, well rounded, minutely granulose. Postnuclear whorls strongly rounded and marked by strong, sublamellar axial ribs, of which 255 are present on the last whorl. Between these a number of finer hairlines are present. Suture strongly impressed. Periphery strongly rounded. Base with a broad, funnel-shaped umbilicus and marked by the continuation of the axial ribs, which extend over the umbilical wall. No spiral sculpture is present on the entire shell. Aperture almost circular; peristome double, the inner decidedly exserted; the outer expanded, forming an auricle at the posterior angle and wider on the outer lip than on the inner. Operculum with almost central nucleus, having a strong lamella, which is slightly outward bent, a little more so at the distal end, and which is marked by retractively curved axial threads.

The specimen described and figured (U.S.N.M. No. 504087), one of 189 specimens, was collected by Orcutt on limestone rocks 40 miles south of Cap-Haïtien. It has 4.7 whorls and measures: Height, 7.3 mm.; greater diameter, 15.1 mm.; lesser diameter, 10.2 mm.

U.S.N.M. No. 403809 contains 188 specimens from the same locality.

U.S.N.M. No. 364063 contains 92 specimens collected by E. C. Leonard in crevices of limestone rock at the summit of the road between Ennery and Plaisance, Haiti.

U.S.N.M. No. 490087 contains 2 specimens collected by Henderson at Plaisance, the type locality.

This species can easily be differentiated from *Rolleia haitensis* by its much more numerous and closely spaced axial ribs.

ROLLEIA HAITENSIS, new species

Plate 23, Figures 7–9

Shell very depressed-helicoid, almost lenticular, pale flesh-colored, with interrupted spiral bands of brown whose elements are also arranged in axial series. The axial arrangement is more emphasized than the spiral. Nuclear whorls 2, well rounded, minutely granulose. Postnuclear whorls strongly rounded, the last one decidedly solute and somewhat deflected. The postnuclear whorls are marked by strongly sublamellar axial ribs, of which 99 are present on the last turn. Between these axial ribs finer hairlike threads are present. Suture well impressed. Periphery strongly rounded. Base with an open funnellike umbilicus. The axial ribs continue over the base and the umbilical wall. There is no spiral sculpture. Aperture almost circular; peristome double, the inner decidedly exserted; the outer broadly expanded on the outer lip, narrowly so on the inner and auriculated at the posterior angle. Operculum with a central nucleus, bearing a strongly elevated lamella which is slightly outward bent, whose outer edge is more strongly reflected. The lamella is marked by retractively curved axial riblets.

The chief distinction between this and *Rolleia martensi* is that it has much fewer and more distantly spaced axial ribs.

The type (U.S.N.M. No. 504088) was collected by E. C. Leonard at Ennery, Haiti. It has 4.5 whorls and measures: Height, 5.5 mm.; greater diameter, 12.0 mm.; lesser diameter, 8.0 mm.

U.S.N.M. No. 364037 contains 112 topotypes from the same source, some of which are considerably larger than the specimens used as the type. One of these has a diameter of 15 mm.

U.S.N.M. No. 366783 contains 1 specimen collected by Leonard in moss on the mountain summit between Ennery and San Michel.

U.S.N.M. No. 393778 contains 4 specimens collected by Bartsch 14 miles north of Gonaïves.

U.S.N.M. No. 393783 contains 3 specimens collected by Bartsch 15 miles north of Gonaïves.

U.S.N.M. No. 393801 contains 4 specimens collected by Bartsch on Peterborough Mountain.

LAGOPOMA, new genus

Shell helicoid, whorls strongly rounded, marked by axial ribs and spiral threads, the junction of which produces granules. Base openly umbilicated. The sculpture of the spire extends over the base and into the umbilicus. Aperture subcircular; peristome double, the outer broadly expanded with a deep notch at the posterior termination of the inner lip. Posterior to this notch the broadly expanded peristome curls inwardly to produce a tubular effect. Operculum with subcentral nucleus, bearing a decidedly elevated, thin lamella, which is almost vertical in its basal two-thirds, then bending outward. It is marked by fine, retractively slanting lines.

Type species: *Lagopoma lagopoma,* new species.

LAGOPOMA LAGOPOMA, new species

PLATE 23, FIGURES 1–3

Shell helicoid, pale brown, with brown rays on the expanded peristome; the apical whorls are frequently reddish. Nuclear whorls 1.6, well rounded, minutely granulose. Postnuclear whorls strongly rounded, marked by slightly retractively curved axial riblets and spiral cords; of the latter 12 are present on the last whorl between the summit and the periphery, and 11 on the preceding turn. The junction of the axial ribs and spiral threads forms almost rounded nodules. Suture slightly channeled. Periphery strongly rounded. Base decidedly openly umbilicated, marked by the continuation of the axial ribs and nine spiral cords between the periphery and the edge of the umbilicus. The umbilical wall also carries the axial ribs and 11 spiral threads. On both base and umbilical wall, the junction of the axial ribs and spiral threads form nodules. Aperture circular; peristome double, the inner well exserted; the outer broadly obliquely expanded, with a deep sinus at the junction of the inner lip and parietal wall. Posterior to this sinus, the outer peristome is rolled inward to almost form a tube. The outer peristome is marked by concentric lines.

The type (U.S.N.M. No. 356198) was collected by Dr. W. L. Abbott at Laguna, 4 miles north of Samaná, Samaná Bay, Dominican Republic. It has 4.5 whorls and measures: Height, 5.0 mm.; greater diameter, 8.2 mm. lesser diameter, 6.0 mm.

U.S.N.M. No. 536872 contains 73 topotypes from the same source.

Genus ABBOTTELLA Henderson and Bartsch

1920. *Abbottella* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, pp. 74–75.

Shell depressed-helicoid, marked by axial ribs of two series; stronger lamellar elements are separated by finer threads. The spiral sculpture consists of feeble cords, which at their junction with the lamellar axial ribs form decided cusps; these in fact are developed into hollow spines in some of the species. Base with broad, funnel-shaped umbilicus, marked by the continuation of the sculpture characterizing the spire; this also extends upon the umbilical wall. Aperture circular; peristome double, the outer broadly flaringly expanded, the inner exserted. Operculum with central nucleus bearing a decidedly elevated lamella which rises vertically to the outer third where it bends obliquely outward.

Type species: *Chondropoma moreletianum* Crosse = *Abbottella moreletiana* (Crosse).

KEY TO THE SPECIES OF ABBOTELLA

- Shell depressed-helicoid.
  - Spiral threads of uniform strength.
    - Axial ribs of uniform strength.
      - Junctions of axial ribs and spiral threads hispid........ **wilhelmi**
      - Junctions of axial ribs and spiral threads not hispid... **newcombi**
    - Axial ribs not of uniform strength.
      - Junctions of axial ribs and spiral threads nodulose..... **haitensis**
      - Junctions of axial ribs and spiral threads spinulose... **moreletiana**
  - Spiral threads not of uniform strength.
    - Outer peristome rolled inward toward the inner peristome at basal columellar angle.............................. **samanensis**
    - Outer peristome not rolled inward toward the inner peristome at basal columellar angle...................... **sanchezi**
- Shell not depressed-helicoid.
  - Shell helicoid.
    - Axial ribs very regularly spaced.
      - Lamella of operculum decidedly oblique................. **adolphi**
      - Lamella of operculum almost vertical................ **sosuaensis**

Axial ribs not very regularly spaced.
  Junctions of axial ribs and spiral cords forming tufts..... **gabbi**
  Junctions of axial ribs and spiral threads not forming tufts.
    Junctions of axial ribs and spiral threads strongly spinose .... **crossei**
    Junctions of axial ribs and spiral threads not strongly spinose .... **tentorium**
Shell not helicoid, but of turbinid outline.
  Axial ribs bearing strong spines.......................... **abbotti**
  Axial ribs bearing feeble spines.......................... **rosaliae**

ABBOTTELLA WILHELMI (Pfeiffer)

PLATE 24, FIGURES 1-3

1858. *Choanopoma wilhelmi* PFEIFFER, Malak. Blätter, vol. 5, p. 139, pl. 2, figs. 1-3.
1920. *Abbottella wilhelmi* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell depressed-helicoid, pale brown. Nuclear whorls 1.5, well rounded, minutely granulose. Postnuclear whorls strongly rounded and marked by retractively curved axial ribs, of which 98 are present on the last whorl. The spiral sculpture consists of slender threads of which three are present on the first turn, four on the second, and eight on the last. The junction of the axial and spiral sculpture produces hispid cusps. Suture rather deeply channeled. Periphery well rounded. Base strongly rounded, very broadly umbilicated, and marked by the continuation of the axial ribs and 10 spiral cords, of which stronger and weaker alternate. The umbilical wall also shows the continuation of the axial ribs and six strong spiral cords. Both on the base and on the umbilical wall the junction of the axial ribs and spiral threads produces decided nodules. Aperture almost circular; peristome double, the inner slightly exserted; the outer broadly flaringly expanded and marked by numerous concentric lines and radiating brown color markings. Operculum typically abbottellid.

The specimen figured (U.S.N.M. No. 529441) was received from Fulton. It has 4.5 whorls and measures: Height, 5.8 mm.; greater diameter, 7.7 mm.; lesser diameter, 6.2 mm. Pfeiffer's type came from Puerto Plata, Dominican Republic. It is most likely that our specimens came from the same source.

U.S.N.M. No. 504089 contains 2 additional specimens from the same source.

ABBOTTELLA NEWCOMBI (Crosse)

PLATE 24, FIGURES 7-9

1873. *Choanopoma newcombi* CROSSE, Journ. Conchyl., vol. 21, p. 352.
1874. *Choanopoma newcombi* CROSSE, Journ. Conchyl., vol. 22, p. 82, pl. 3, figs. 1, 1a.
1920. *Abbottella newcombi* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell depressed-helicoid, pale brown, with the peristome slightly paler.

Nuclear whorls 1.6, well rounded, minutely granulose. Postnuclear whorls strongly rounded and marked by numerous closely crowded axial riblets, of which 262 are present on the last turn. In addition to the axial riblets, the whorls are marked by strong spiral threads, of which 19 are present on the last turn between summit and periphery. The junction of the axial ribs and the spiral threads forms minute tubercles, those on the first keel below the summit being more elongate and stronger than the rest. Suture deeply channeled. Periphery well rounded. Base well rounded and marked by the continuation of the axial ribs and 17 spiral threads equaling those on the spire in strength; the umbilical wall also is marked by the continuation of the axial ribs and spiral cords, which vary in strength, heavy ones alternating with one or more of the weaker; there are 11 in all. The base is broadly openly umbilicated. Aperture almost circular, somewhat oblique; peristome double, the inner slightly exserted; the outer flaringly expanded, a little wider on the outer lip than on the inner and parietal wall, forming a broad auricle at the posterior angle. Operculum typically abbottellid.

The specimen figured (U.S.N.M. No. 57302) is one of two received from Newcomb with the designation "Santo Domingo." It has 4.5 whorls and measures: Height, 5.5 mm.; greater diameter, 9.7 mm.; lesser diameter, 7.2 mm.

ABBOTTELLA HAITENSIS, new species

Plate 24, Figures 10–12

Shell very depressed-helicoid, flesh-colored, marked by interrupted spiral bands of brown arranged also in axial series and rendering the outer peristome rayed. Nuclear whorls 1.5, well rounded, depressed. Postnuclear whorls strongly rounded, marked by strong lamellar axial ribs between which a number of finer hairlike axial threads are present. The last whorl bears 60 of the stronger ribs. Of the feeble spiral threads, 10 are present between the summit and the periphery. The junctions of the axial ribs and spiral threads form feeble, elongate nodules, with their long axis parallel with the axial sculpture. The first row of these nodules renders the suture slightly crenulated. Suture channeled. Periphery strongly rounded. Base strongly rounded, very broadly openly umbilicated, and marked by the continuation of the axial ribs, which pass over the base and on the umbilicus almost undiminished. The spiral threads here are a trifle stronger than on the spire and there are six present on the base and 7 on the umbilical wall. Aperture subcircular; peristome double, the inner decidedly exserted, the outer broadly expanded on the outer lip, less so on the inner lip and marked by slender concentric lamellae.

The type (U.S.N.M. No. 504111) was collected by Dr. W. L. Abbott on the road to Grand Bois, 4 miles north of Thomazeau, Haiti, at an elevation of 1,000 feet. It has 4.4 whorls and measures: Height, 7.0 mm.; greater diameter, 12.7 mm.; lesser diameter, 9.5 mm.

U.S.N.M. No. 504112 contains 10 topotypes from the same source.

This species belongs to the group of *Abbottella moreletiana,* from which it differs by having the junction of the axial ribs and spiral threads nodulose, not spinulose.

ABBOTTELLA MORELETIANA (Crosse)

Shell depressed-helicoid, with broad, open, funnel-shaped umbilicus. The axial sculpture consists of lamellar ribs between which finer threads are present. The spiral sculpture consists of feeble threads that render the axial ribs sharply spinulose at their intersection. This type of sculpture is characteristic of both spire and base; the spinuloseness is, however, absent on the umbilical wall. The suture may be deeply and broadly channeled or almost appressed. Aperture circular with the inner peristome exserted and the outer broadly flaringly expanded. The width of the peristome varies in the different races. Operculum with central nucleus and a very strongly elevated oblique lamella.

The species ranges over Samaná Peninsula and the southern part of the Dominican Republic. It breaks up into a number of zoogeographic races, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF ABBOTTELLA MORELETIANA

- Outer peristome of inner lip very broadly expanded.
  - Shell decidedly depressed.. **kriegeri**
  - Shell not decidedly depressed.
    - Greater diameter more than 10 mm.
      - Spiral threads between summit and periphery 6.... **moreletiana**
      - Spiral threads between summit and periphery 10.. **domingoensis**
    - Greater diameter less than 8 mm.......................... **wetmorei**
- Outer peristome of inner lip not very broadly expanded........... **gabriella**

ABBOTTELLA MORELETIANA KRIEGERI, new subspecies

PLATE 24, FIGURES 4–6

Shell decidedly depressed, with very broadly channeled suture. In the type there are 58 of the lamellar axial ribs on the last whorl, 7 spiral threads between the summit and periphery, and 3 on the umbilical wall.

The type (U.S.N.M. No. 504115) has 3.3 whorls remaining and measures: Height, 4.0 mm.; greater diameter, 10.0 mm.; lesser diameter, 7.0 mm. It was collected by H. W. Krieger on the north side of the Samaná Peninsula on the center of the south side of San Juan Bay, Dominican Republic.

U.S.N.M. No. 499179 contains 31 topotypes from the same source.

ABBOTTELLA MORELETIANA MORELETIANA (Crosse)

PLATE 25, FIGURES 10–12

1873. *Choanopoma moreletiana* CROSSE, Journ. Conchyl., vol. 21, p. 354.
1874. *Choanopoma moreletiana* CROSSE, Journ. Conchyl., vol. 22, p. 85, pl. 3, figs. 3, 3a.
1920. *Abbottella moreletiana* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

This subspecies appears to occupy the territory adjacent to the south side of Samaná Bay, Dominican Republic.

It is large, flesh-colored, with the peristome rayed with brown, the outer lip very strongly expanded, almost forming a hood at the posterior angle; it is a little narrower on the parietal wall.

The specimen figured (U.S.N.M. No. 504113) was collected on the Boca del Infierno by Gerrit S. Miller, Jr. It has 4.5 whorls, the last one of which bears 38 of the lamellar ribs and 6 spiral threads between the summit and periphery, 3 on the base, and 7 on the umbilical wall. The suture is deeply channeled. It measures: Height, 6.8 mm.; greater diameter, 12.8 mm.; lesser diameter, 8.9 mm.

U.S.N.M. No. 369103 contains 3,847 specimens from the same source.

U.S.N.M. No 57308 contains 2 specimens from the Stearns Collection labeled "Santo Domingo."

U.S.N.M. No. 529438 contains 1 specimen from Sowerby and Fulton labeled "Samaná Bay."

U.S.N.M. No. 369141 contains 3 specimens collected by G. S. Miller, Jr., on the Lower Orange Keys, Samaná Bay.

U.S.N.M. No. 369150 contains 5 specimens collected by G. S. Miller, Jr., on the Upper Orange Keys.

U.S.N.M. No. 504114 contains 167 specimens collected by W. L. Abbott one-quarter of a mile inland from San Lorenzo Bay.

ABBOTTELLA MORELETIANA DOMINGOENSIS, new subspecies

PLATE 25, FIGURES 1–3

. This is a large race, flesh-colored, with the outer peristome very broadly conspicuously rayed, whose axial threads between the lamellar elements are considerably heavier than in the others.

The type (U.S.N.M. No. 504117) was collected by Dr. Lagai at "Santo Domingo," probably Santo Domingo City, and has 59 of the lamellar axial ribs and bears 10 spiral cords on the last whorl between the summit and the periphery, 6 on the base and 7 on the umbilical wall. It has 4.5 whorls and measures: Height, 7.8 mm.; greater diameter, 12.2 mm.; lesser diameter, 8.6 mm.

U.S.N.M. No. 504118 contains 47 topotypes from the same source.

ABBOTTELLA MORELETIANA WETMOREI, new subspecies

Plate 26, Figures 8–10

This, the smallest subspecies of *Abbottella moreletiana,* was collected by Dr. A. Wetmore on Pelican Keys, San Lorenzo Bay, Samaná Bay, Dominican Republic. It is easily differentiated, in addition to its small size, from the other members by having the summit of the whorls almost appressed; the suture therefore is scarcely channeled.

The type (U.S.N.M. No. 504119) has 4.5 whorls and 39 strong lamellar axial ribs on the last whorl, which bear 8 spiral threads between the summit and the periphery, 6 on the base, and 5 on the umbilical wall. It measures: Height, 5.8 mm.; greater diameter, 7.0 mm.; lesser diameter, 5.4 mm.

U.S.N.M. No. 367247 contains 34 topotypes from the same source.

U.S.N.M. No. 504121 contains 13 specimens collected by Wesley Newcomb on Pajarito Island, Samaná Bay.

ABBOTTELLA MORELETIANA GABRIELLA, new subspecies

Plate 25, Figures 4–6

This race, while nearest in location to *A. m. wetmorei,* which it resembles somewhat in smallness although it is larger than *wetmorei,* can easily be differentiated from it by its deeply channeled suture.

The type (U.S.N.M. No. 504124) was collected by Gerrit S. Miller, Jr., on San Gabriel Isle, Samaná Bay. It has 53 lamellar axial ribs on the last whorl, 8 spiral threads between the summit and the periphery, 4 on the base, and 5 on the umbilical wall. It measures: Height, 7.0 mm.; greater diameter, 8.6 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 369127 contains 335 topotypes from the same source.

U.S.N.M. No. 504125 contains 107 specimens collected by Dr. W. L. Abbott on San Gabriel Isle.

U.S.N.M. No. 203638 contains 3 specimens from the Ulrich Collection.

ABBOTTELLA SAMANENSIS, new species

Plate 25, Figures 7–9

Shell depressed-helicoid, pale brown, with the expanded peristome paler and rayed. Nuclear whorls 2, well rounded, minutely granulose. Postnuclear whorls strongly rounded and marked by slender, retractively curved axial ribs, of which 182 are present on the last whorl. In addition to the axial ribs, the whorls are marked by spiral cords of two strengths, heavier ones alternating with finer threads. This lends to the surface a very striking pattern. There are 19 spiral cords on the last whorl between the summit and the periphery. The junctions of the axial ribs and spiral cords form strong nodules, the strength of which depends upon the spiral cord in question. Suture strongly channeled. Periphery well rounded. Base strongly rounded and marked by the continuation of the axial ribs and 16 spiral cords. The umbilical wall is also marked by the continuation of the axial ribs and 14 spiral cords; the latter vary in strength. Aperture almost circular, somewhat oblique; peristome double, the inner decidedly exserted; the outer flaringly expanded and marked by slender, concentric laminae, much broader on the outer lip and at the posterior angle, narrower on the inner lip and rolled inward toward the inner peristome on the basal half of the inner lip. Operculum typically abbottellid.

The type (U.S.N.M. No. 504090) has 5 whorls and measures: Height, 7.5 mm.; greater diameter, 10.6 mm.; lesser diameter, 7.4 mm. It was collected by Dr. W. L. Abbott at Cape Samaná, Dominican Republic.

U.S.N.M. No. 504091 contains 208 topotypes from the same source.

ABBOTTELLA SANCHEZI, new species

PLATE 26, FIGURES 1–3

Shell depressed-helicoid, pale brown, with the peristome flesh-colored. Nuclear whorls 2, strongly rounded, minutely granulose. Postnuclear whorls inflated and strongly rounded, marked by numerous closely crowded axial ribs, of which 221 are present on the last turn. In addition to this, the whorls are marked by spiral cords which are of two strengths. Of these cords 13 are present between the summit and the periphery on the last whorl. The junction of the spiral threads and axial ribs forms nodules whose strength depends upon the strength of the spiral cords. Suture moderately channeled. Periphery rendered slightly angulated by a strong spiral cord. Base strongly rounded, widely openly umbilicated, and marked by the continuation of the axial ribs and eight spiral cords. The umbilical wall is also marked by the continuation of the axial ribs and eight decidedly strong spiral cords. Both on the base and umbilical wall the junction of the axial ribs and spiral cords form nodules. Aperture almost circular; peristome double, the inner somewhat exserted; the outer flaringly expanded, of about the same width all around. Operculum typically abbottellid.

The type (U.S.N.M. No. 504092) was collected by Dr. W. L. Abbott 2 miles northwest of Sánchez, Dominican Republic. It has 4.8 whorls and measures: Height, 6.9 mm.; greater diameter, 9.1 mm.; lesser diameter, 7.6 mm.

U.S.N.M. No. 504093 contains 149 topotypes from the same source.

Another lot of 15 specimens (U.S.N.M. No. 504094) was also collected by Dr. Abbott on a hillside north of Sánchez.

ABBOTTELLA ADOLPHI (Pfeiffer)

Shell helicoid, of various shades of brown, with the expanded peristome paler, with or without rays. The postnuclear whorls are marked by closely crowded axial ribs, which are crossed by fine spiral threads producing a reticulated pattern. The junction of the axial ribs and spiral threads is minutely granulose. Suture very narrowly channeled. Base well rounded, marked like the spire, and openly umbilicated, the umbilical wall marked by very strong spiral cords and the continuation of the axial ribs. Aperture circular; peristome double, inner slightly exserted; the outer broadly flaringly expanded with or without rays and marked by feeble concentric threads. Operculum with central nucleus and a decidedly oblique lamella.

KEY TO THE SUBSPECIES OF ABBOTTELLA ADOLPHI

Outer peristome strongly rayed	adolphi
Outer peristome not strongly rayed	peninsularis

ABBOTTELLA ADOLPHI ADOLPHI (Pfeiffer)

Plate 26, Figure 4

1852. *Choanopoma adolphi* Pfeiffer, Monographia pneumonopomorum viventium, p. 167.
1854. *Cyclostoma adolphi (Choanopoma)* Pfeiffer, Proc. Zool. Soc. London, 1852, p. 142.
1854. *Cyclostoma adolphi* Pfeiffer, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, pt. 19, p. 371, pl. 48, figs. 5-8.
1920. *Abbottella adolphi* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell umbilicated, conic-hemispherical, rather thin-shelled, granulated and reticulated by axial ribs and spiral threads, translucent, brownish yellow, with interrupted reddish brown lines. Spire convex-conic, with fine spinules. Suture irregularly and distantly notched. Whorls 4.5, convex, the last rounded, provided with several keellike spiral cords in the moderately broad umbilicus. Aperture a little oblique, circular. Peristome double, the inner continuous, narrowly exserted; the outer expanded and concentrically ridged, somewhat wavy, rayed with brown and expanded above into a small ear. Height, 5 mm.; diameter, 8 mm. Operculum exactly like that of *Abbottella tentorium.* Collected by Sallé in "Haiti."

I have not seen specimens that could without doubt be referred to *Abbottella adolphi adolphi* and have translated Pfeiffer's German description in Martini-Chemnitz. His figure 8 shows a form with strongly rayed outer peristome, which easily differentiates it from *A. a. peninsularis.*

Sallé did not collect in Haiti but in the Dominican Republic, which at that time was usually referred to as Haiti.

ABBOTTELLA ADOLPHI PENINSULARIS, new subspecies

Plate 26, Figures 14–16

Shell helicoid. Nuclear whorls 1.5, well rounded, minutely granulose. Postnuclear whorls inflated, strongly rounded, and marked by closely spaced axial riblets, of which 266 are present on the last whorl. In addition to the axial riblets, the whorls are marked by spiral cords, of which 19 are present on the last part of the last turn. The junction of the axial ribs and spiral cords forms well-defined nodules, which give to the surface of the shell a granulose appearance. Suture narrowly channeled. Periphery well rounded. Base marked by the continuation of the axial ribs and seven spiral cords, which are a little stronger than those on the spire. The umbilicus is very broad and bordered on its outer margin by a very strong keel, and within by 10 additional strong keels. Aperture circular; peristome double, the inner slightly exserted; the outer very broadly flaringly expanded, pale yellow, with scarcely an indication of rays, marked by concentric lines. Operculum with central nucleus and decidedly oblique lamella.

The type (U.S.N.M. No. 504095) was collected by Dr. W. L. Abbott on the trail from Samaná to Río San Juan, Samaná Peninsula. It has 5 whorls and measures: Height, 7.0 mm.; greater diameter, 9.8 mm.; lesser diameter, 7.0 mm.

I have given a full description of this subspecies, since I do not have specimens of typical *adolphi* for a comparative description.

U.S.N.M. No. 504096 contains 206 topotypes from the same source.

U.S.N.M. No. 504097 contains 1 specimen collected by Dr. W. L. Abbott at Laguna.

ABBOTTELLA SOSUAENSIS, new species

PLATE 26, FIGURES 11–13

Shell small, helicoid, pale brown, with the peristome paler and slightly rayed. Nuclear whorls 1.7, well rounded, minutely granulose. Postnuclear whorls marked by poorly developed axial ribs of which 121 are present on the last turn. These axial ribs become a little more emphasized on the summit of the whorls. In addition to the axial ribs, the whorls are marked by strong spiral cords, of which 12 are present between the summit and periphery of the last whorl. Suture deeply channeled. Periphery well rounded. Base well rounded and marked by the continuation of the axial ribs and eight spiral cords. The umbilicus is moderately broadly open and its wall bears eight spiral cords and the continuation of the axial ribs. Aperture circular; peristome double, the inner rather strongly exserted; the outer moderately broad, a little wider on the outer lip than on the inner and somewhat auriculated at the posterior angle and marked by concentric lines. Operculum with central nucleus, bearing a decidedly elevated, almost vertical lamella.

The type (U.S.N.M. No. 336768) was collected by Dr. W. L. Abbott at Sosúa, 16 miles east of Puerto Plata, Dominican Republic. It has 4.6 whorls and measures: Height, 4.6 mm.; greater diameter 7.0 mm.; lesser diameter, 5.9 mm.

U.S.N.M. No. 336765 contains 703 topotypes from the same source.

ABBOTTELLA GABBI (Crosse)

Shell small, helicoid, marked by closely spaced axial ribs, which are gathered into groups producing a crenulated effect at the periphery. The spiral sculpture consists of cords, which vary very materially in strength; some are slender, others form strong keels. Suture channeled. Periphery keeled. Base well rounded and marked by spiral cords, which again vary in strength; this is also the case of the spiral cords on the umbilical wall. The axial riblets extend over both base and umbilical wall. The umbilicus is broadly funnel-shaped. Aperture circular; peristome double, the inner slightly exserted; the outer broadly flaringly expanded and rayed. Operculum with central nucleus and an almost vertical lamella.

ABBOTTELLA GABBI GABBI (Crosse)

Plate 26, Figures 5–7

1873. *Choanopoma gabbi* Crosse, Journ. Conchyl., vol. 21, p. 353.
1874. *Choanopoma gabbi* Crosse, Journ. Conchyl., vol. 22, p. 84, pl. 3, fig. 2.
1920. *Choanopoma gabbi* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 75.
1933. *Choanopoma gabbi* Pilsbry, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, pp. 129–130, pl. 7, figs. 5, 5a, 6.

This subspecies has been restricted by Dr. H. A. Pilsbry, who had specimens from the Gabb collection which embraced both this and *Abottella crossei.*

Dr. Pilsbry was good enough to give us one of the specimens from the Gabb collection, which I am describing and figuring. Gabb's specimen bears merely the label "Santo Domingo," and I have seen nothing to enable me to fix the locality definitely.

U.S.N.M. No. 504098 has 4.6 whorls, the last of which bears 30 of the knobs consisting of fused axial riblets at the periphery and 192 fine riblets. It has seven spiral threads between the summit and the periphery, two on the base, and three within the umbilicus, and measures: Height, 3.7 mm.; greater diameter, 6.6 mm.; lesser diameter, 5.2 mm. Aside from the lesser number of ribs and lesser number of spiral cords, the shell is also much smaller than the one I am calling *Abbottella gabbi pilsbryi;* the shell is much more acutely sloping between the periphery and the first strong spiral cord, which gives the last whorl a decidedly more angulated aspect.

ABBOTTELLA GABBI PILSBRYI, new subspecies

Plate 27, Figures 7–9

This race was collected by Dr. W. L. Abbott in a cave on the Río Seco near Samaná, Samaná Bay, Dominican Republic.

The type (U.S.N.M. No. 504099) has 4.6 whorls and 42 fused knobs and ribs at the periphery and 208 fine axial riblets. It has seven spiral threads between the summit and the periphery, five on the base, and four in the umbilicus, and measures: Height, 5.3 mm.; greater diameter, 7.5 mm.; lesser diameter, 6.6 mm. The last whorl is much more rounded than in typical *Abbottella gabbi gabbi,* and the first strong keel, posterior to the periphery, is almost as strong as the peripheral keel; the spaces between the two are flatter.

U.S.N.M. No. 504100 contains 52 topotypes from the same source.

ABBOTTELLA CROSSEI (Pilsbry)

PLATE 27, FIGURES 13–15

1933. *Choanopoma crossei* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 85, p. 130, pl. 7, figs. 5, 5a, 6.

Shell helicoid, pale horn-colored, with the outer peristome rayed with brown. Nuclear whorls 1.6, well rounded, forming a slender apex. Postnuclear whorls strongly inflated, well rounded, marked by axial ribs, which are more or less grouped in series, several stronger ones being followed by less strongly developed threads. Of the axial ribs 73 are present on the last whorl. The spiral sculpture consists of slender threads, of which 12 are present between the summit and periphery, 12 on the base, and 11 on the umbilical wall. The junction of the axial ribs and spiral threads forms sharp cusps on the spire and base, but not within the umbilicus. Suture strongly constricted. The umbilicus is broad and funnel-shaped. Aperture almost circular; peristome double, the inner exserted; the outer broadly expanded and obliquely reflected and marked by slender concentric lamellae. Operculum typically abbottellid.

Dr. Pilsbry's type (Acad. Nat. Sci. Phila. No. 79511) measures: Height, 5.4 mm.; greater diameter, 7.5 mm.; lesser diameter, 5.5. It is without specific locality.

The specimen figured (U.S.N.M. No. 504101) was collected by W. L. Abbott half a mile from the sea, 1.5 miles east of Puerto Francés, Samaná Bay, Dominican Republic. It has 4.6 whorls and measures: Height, 6.0 mm.; greater diameter, 9.6 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 366799 contains 100 specimens from the same locality.

U.S.N.M. No. 504102 contains 61 specimens also collected by Dr. Abbott in a cave 2 miles northwest of Sánchez, Samaná Bay.

These specimens agree in every way with Dr. Pilsbry's type, and I may therefore assume that it came from somewhere on the Samaná Peninsula.

ABBOTTELLA TENTORIUM (Pfeiffer)

PLATE 27, FIGURES 1–3

1850. *Cyclostoma tentorium* PFEIFFER, Zeitschr. Malak., vol. 7, p. 77.

1852. *Choanopoma tentorium* PFEIFFER, Conspectus cyclostomaceorum, p. 27.

1854. *Cyclostoma tentorium* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, vol. 1, pt. 19, p. 284, pl. 39, figs. 16–18.

1920. *Abbottella tentorium* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell very small, helicoid, flesh-colored. Nuclear whorls 2, inflated, strongly rounded, forming a rather pointed apex. Postnuclear whorls strongly rounded and marked by sublamellar, retractively slanting axial ribs, of which 58 are present on the last whorl. The spiral sculpture consists of slender threads, of which eight are present between summit and periphery on the last whorl, six on the base, and eight on the umbilical wall. The junction of the axial ribs and spiral threads forms nodules that are rather sharp on the spire, less so on the umbilical wall. Suture strongly constricted. Periphery well rounded. Base openly umbilicated. Aperture almost circular; peristome double, the inner exserted; the outer moderately broadly expanded, somewhat auriculated at the posterior angle and marked by slender concentric lamellae. Operculum with nucleus and a decidedly elevated, slightly oblique lamella.

The specimen figured (U.S.N.M. No. 504103) is one from the Sallé collection bearing the locality "Santo Domingo" without specific location. It has 4.5 whorls and measures: Height, 4.1 mm.; greater diameter, 6.0 mm.; lesser diameter, 4.7 mm.

U.S.N.M. No. 151335 contains 6 specimens collected by Sallé in the Dominican Republic.

U.S.N.M. No. 529440 contains 3 specimens from Sowerby and Fulton labeled "Haiti."

U.S.N.M. No. 504104 contains 2 specimens from the Cuming Collection.

U.S.N.M. No. 504105 contains 12 specimens from the Prime Collection.

U.S.N.M. No. 504106 contains 1 specimen labeled "Santo Domingo."

U.S.N.M. No. 316429 contains 3 specimens from the Evezard Collection.

ABBOTTELLA ABBOTTI, new species

Plate 27, Figures 10–12

Shell small, of turbinid outline, pale yellow, with rather broad interrupted spiral bands of brown. Nuclear whorls 1.8, small, inflated, strongly rounded, forming a conspicuously elevated apex. Postnuclear whorls strongly rounded and marked by axial riblets, which bear strongly elevated hollow spines, of which 31 are present on the last whorl. Of the rows of spines, seven are present between the summit and the periphery, three on the base, and three on the umbilical wall. The latter are less strongly spinose. Suture strongly constricted. Periphery rendered angulated by the spiral cords. Base well rounded, openly umbilicated. Aperture circular; peristome double, the inner somewhat exserted; the outer broadly expanded, wider on the outer lip than on the inner and marked by concentric, slender lamellae, and strongly fluted. Operculum with central nucleus and a strongly raised oblique lamella.

The type (U.S.N.M. No. 504108) was collected by Dr. W. L. Abbott near Laguna, Samaná Bay, Dominican Republic. It has 5 whorls and measures: Height, 5.9 mm.; greater diameter, 6.0 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 504110 contains 118 topotypes from the same source.

ABBOTTELLA ROSALIAE (Pfeiffer)

PLATE 27, FIGURES 4-6

1858. *Choanopoma rosaliae* PFEIFFER, Malak. Blätter, vol. 5, p. 139, pl. 2, figs. 4-6.
1920. *Abbottella rosaliae* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell small, of turbinid outline, pale yellow, marked with broad interrupted bands of brown. Nuclear whorls 2, strongly inflated, well rounded, forming an acute apex. Postnuclear whorls inflated, strongly rounded, and marked by slender axial ribs, which bear feeble, somewhat spinose nodules at their intersection with the spiral threads. Of these axial riblets, 43 are present on the last turn. Of the spiral threads three are present between the summit and periphery, the first of these being almost midway between these two points, the last marking the periphery. Suture strongly constricted. Base moderately broadly openly umbilicated, well rounded, and marked by three spiral threads, while on the umbilical wall there are five. Aperture circular; peristome double, the inner slightly exserted; the outer broadly flaringly expanded, fluted and marked by slender concentric lamellae, wider on the outer lip than on the inner. The operculum has a central nucleus and a slender oblique lamella.

The specimen figured (U.S.N.M. No. 336764) is one of 7 collected by Dr. W. L. Abbott at Sosúa, 16 miles east of Puerto Plata, Dominican Republic. It has 4.9 whorls and measures: Height, 6.2 mm.; greater diameter, 6.2 mm.; lesser diameter, 3.8 mm.

EYERDAMIA, new genus

Shell of turbinid outline, marked by axial ribs only or by the merest indications of nodules on the axial ribs. There are no spiral markings in the intercostal spaces, even in the broad open umbilicus. Aperture almost circular; peristome double, the outer broadly flaringly expanded; the inner well exserted and slightly reflected. Operculum with central nucleus, bearing a thin calcified, obliquely slanting lamella whose whorls are separated by a broad space.

Type species: *Eyerdamia eyerdami*, new species.

KEY TO THE SPECIES OF EYERDAMIA

Axial ribs weakly nodulose.. princesa
Axial ribs not nodulose.. eyerdami

EYERDAMIA PRINCESA, new species

PLATE 28, FIGURE 5

Shell of turbinid outline, with rather broad interrupted spiral bands of brown, which are almost continuous. Nuclear whorls 2, inflated, strongly rounded, forming a well-elevated apex. Postnuclear whorls marked by sublamellar axial ribs, the early ones showing feeble nodulations. Of these axial ribs 115 are present on the last whorl of the type. There are no indications of spiral threads in the spaces between the axial ribs or on the umbilical wall.

The type (U.S.N.M. No. 504134), which was collected by C. R. Orcutt on the estate of the Haitian American Sugar Co., north of Port-au-Prince, Haiti, has lost the early whorls. The 3.8 remaining measure: Height, 11.6 mm.; greater diameter, 9.5 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 403000 contains 2 topotypes, one of which, a not quite mature specimen with perfect nucleus, has 5.6 whorls and measures: Height, 11.4 mm.; greater diameter, 9.1 mm.; lesser diameter, 7.9 mm.

The feeble nodulation, larger size, and stronger coloration will readily distinguish this species from *Eyerdamia eyerdami.*

EYERDAMIA EYERDAMI, new species

Plate 28, Figure 11

Shell of turbinid outline, thin, semitranslucent, flesh-colored, with interrupted, distantly spaced, spiral dots of brown, arranged also in axial series. Nuclear whorls 2, inflated, well rounded, microscopically granulose. Postnuclear whorls very strongly inflated and rounded and marked by very regular, slender, sublamellar axial ribs, of which 109 are present on the last turn. Suture strongly constricted. Periphery inflated, well rounded. Base short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs, which extend over the umbilical wall. There is no indication of spiral sculpture anywhere, even on the umbilical wall. Umbilicus moderately broadly open. Aperture almost circular; peristome double, the inner slightly exserted and reflected; the outer broadly evenly expanded and marked by concentric lines of growth. Operculum with central nucleus and slender, well elevated, obliquely flaring lamella, which leaves broad spaces in the interval between its turns.

The type (U.S.N.M. No. 504133) was collected by W. J. Eyerdam at the base of cliffs under debris at Pestel, Haiti. It has 5.5 whorls and measures: Height, 9.3 mm.; greater diameter, 10.0 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 380331 contains 17 topotypes.

This species can easily be separated from *Eyerdamia princesa* by its smaller size and the absence of indication of nodules on the ribs.

WEINLANDIPOMA, new genus

Small annulariid shells having an elongate-ovate or ovate outline. The whorls are marked by sublamellar axial ribs, which become expanded into auricles at the summit. These ribs may be straight or decidedly wavy, or even scalloped. The spaces between the axial ribs are marked by numerous, very fine, closely spaced spiral lines. A series of scallops arranged in spiral order may be present or absent on the outer portion of the open umbilicus. Aperture almost circular; peristome double, the outer decidedly expanded. Operculum with subcentral nucleus provided with an obliquely slanting lamella.

Type species: *Choanopoma blandii* Weinland = *Weinlandipoma blandii* (Weinland).

KEY TO THE SPECIES OF WEINLANDIPOMA

- Lamellar axial ribs wavy.
  - Outer peristome of inner lip reflected inward as a shelf...... **gonavense**
  - Outer peristome of inner lip not reflected inward as a shelf.
    - Outer peristome deeply excised on parietal wall.......... **excisum**
    - Outer peristome not deeply excised on parietal wall.
      - Outer peristome broadly expanded all around.... **strictecostatum**
      - Outer peristome narrower on the parietal wall.
        - Axial ribs decidedly scalloped...................... **orcutti**
        - Axial ribs feebly scalloped.......................... **blandii**
- Lamellar axial ribs not wavy.
  - Axial ribs numerous and closely spaced........................ **milleri**
  - Axial ribs fewer and more distantly spaced.................. **meridianum**

WEINLANDIPOMA GONAVENSE (Weinland)

Shell varying from ovate to elongate-ovate, varying in color from flesh color to brown, unicolor or marked by interrupted spiral bands of brown, which terminate in conspicuous rays on the outer peristome. Nuclear whorls 1.8, small, inflated, forming a rather sharp apex. The postnuclear whorls are strongly rounded and marked by lamellar axial ribs, which bear scallops arranged in regular spiral series and which give to the ribs a wavy outline. Between the lamellar ribs one or more finer axial threads may be present. The intercostal spaces are marked by numerous, very fine, closely spaced, spiral threads separated by spaces about as wide as the threads. These become apparent only under high magnification. Suture strongly constricted. Base short, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs and on the umbilical wall by strong, almost lamellar cords. Aperture almost circular; peristome double, the inner slightly exserted and reflected; the outer broadly expanded on the outer and basal lip, less so on the inner lip and slightly so on the parietal wall. The outer peristome is composed of a series of lamellae which on the inner lip curl inward clawlike, that is, all except the last one, which has a normal slant. Operculum with central nucleus bearing a decidedly oblique, strongly elevated lamella. The species is confined to the southwest coast of Haiti, the Île à Vache and Gonave Island.

I am recognizing three subspecies, which the following key and descriptions will help to differentiate:

KEY TO THE SUBSPECIES OF WEINLANDIPOMA GONAVENSE

Shell stout.. **robustum**
Shell not stout.
    Scallops between summit and periphery 8.................... **conceptum**
    Scallops between summit and periphery 5.................... **gonavense**

WEINLANDIPOMA GONAVENSE ROBUSTUM, new subspecies

PLATE 28, FIGURE 3

This subspecies was collected by Orcutt at several stations near Les Cayes, Haiti. It differs from typical *W. g. gonavense* in being much larger and much more gibbose.

The type (U.S.N.M. No. 404981), which comes from Carbenia, Haiti, has 4 whorls remaining and bears 63 of the strong ribs on the last turn and 6 scallops on the ribs, 2 on the base, and 2 on the umbilical wall. It measures: Height, 8.8 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.0 mm.

U.S.N.M. No. 504135 contains 38 topotypes from the same source.

U.S.N.M. No. 402766 contains 31 specimens collected by Orcutt near Les Cayes on a steep wooded slope in a dry ravine.

WEINLANDIPOMA GONAVENSE CONCEPTUM, new subspecies

PLATE 28, FIGURE 2

This subspecies appears to be confined to that part of the south coast of the south peninsula that extends from Coteaux to Les Cayes, Haiti. It is smaller and slenderer than *W. g. robustum.*

The type (U.S.N.M. No. 402340), which was collected by C. R. Orcutt on the road between L'Acul and Port Salut, about halfway to the first summit, has 39 axial ribs on the last whorl. It has four strong scallops on the earlier whorls and eight between the summit and periphery on the last turn, one on the base, and two at the edge of the umbilicus. The type has 6.5 whorls and measures: Height, 8.8 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.0 mm .

U.S.N.M. No. 402314 contains 67 topotypes from the same source.

U.S.N.M. No. 404887 contains 7 specimens from Anse à Juif.

U.S.N.M. No. 404769 contains 4 specimens collected by Orcutt 1 mile west of Point Sable.

U.S.N.M. No. 402149 contains 6 specimens from Port Salut, collected by Orcutt.

U.S.N.M. No. 402109 contains 1 specimen collected by Orcutt on the north side of the Rivière de Port Salut near its mouth.

U.S.N.M. No. 404795 contains 3 specimens collected by Orcutt at Carpentier.

U.S.N.M. No. 404812 contains 46 specimens collected by Orcutt west of Carpentier.

U.S.N.M. No. 404873 contains 36 specimens collected by Orcutt west of the first creek west of Carpentier.

U.S.N.M. No. 402303 contains 4 specimens collected on the beach between Rivière de l'Acul and St. Jean du Sud.

WEINLANDIPOMA species?

An immature specimen from the Île à Vache shows a much narrower umbilicus and a size intermediate between the two subspecies described above. I hesitate to bestow a name upon this until more perfect material will come to hand.

WEINLANDIPOMA GONAVENSE GONAVENSE (Weinland)

Plate 28, Figure 4

1880. *Cyclostoma (Choanopoma?) gonavense* Weinland, Jahrb. deutschen malak. Ges., vol. 7, pp. 340–341, pl. 12, fig. 2.

1891. *Choanopoma? gonavense* Crosse, Journ. Conchyl., vol. 39, p. 166.

The typical subspecies we have from many stations on the Island of Gonave. It resembles most nearly *Weinlandipoma gonavense conceptum* but averages larger and is of darker color and has only five scallops between the summit and the periphery on the last whorl, two on the base, and one at the outer edge of the umbilicus. The inner lip of the outer peristome is also less expanded.

The specimen figured (U.S.N.M. No. 355945) was collected by John B. Henderson on Gonave Island in the hills above Anse à Galets at an elevation of 1,000 feet. It has 4.5 whorls remaining and measures: Height, 9.0 mm.; greater diameter, 5.7 mm.; lesser diameter, 4.2 mm.

U.S.N.M. No. 355948 contains 90 specimens from the same place and source.

U.S.N.M. No. 355949 contains 9 specimens collected by Henderson at Anse à Galets.

U.S.N.M. No. 355951 contains 54 specimens collected by Henderson near Anse à Galets at 500 feet elevation.

U.S.N.M. No. 355950 contains 220 specimens collected by Henderson on Gonave Island.

U.S.N.M. No. 355952 contains 11 specimens collected by Henderson at Étroites.

U.S.N.M. No. 380155 contains 3 specimens collected by Eyerdam on a mountain under stones above Point-à-Raquette.

U.S.N.M. No. 380205 contains 2 specimens collected by Eyerdam in a forest at Morne Corps.

U.S.N.M. No. 381014 contains 1 specimen collected by Eyerdam 1 mile northeast of Point-à-Raquette.

U.S.N.M. No. 380219 contains 2 specimens collected by Eyerdam near South Abricots.

U.S.N.M. No. 380230 contains 1 specimen collected by Eyerdam on Gonave Island.

WEINLANDIPOMA EXCISUM, new species

PLATE 28, FIGURE 1

Shell elongate-ovate, flesh-colored. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, and marked by lamellar axial ribs, which are weakly scalloped. Of these axial ribs, 41 are present on the last turn. Between the lamellar axial ribs one or two finer axial threads may be present. The intercostal spaces are marked by closely spaced, feeble spiral hairlines, which are about as wide as the spaces that separate them and become apparent only under high magnification. Suture strongly constricted. Periphery well rounded. Base moderately broadly openly umbilicated and marked by the continuation of the axial ribs and by two slightly stronger scallops at the outer edge of the umbilicus. The ribs of the umbilical wall bend toward the scallops. Aperture circular; peristome double, the inner exserted; the outer broadly, flaringly expanded, of wavy outline, with a decidedly reflected, broad notch at the parietal wall which leaves the peristome of the posterior angle of the aperture and the inner lip point of the sinus, standing out as horns; the outer peristome is marked by slender concentric lamellae. Operculum? (The shell characters, however, indicate that this species belongs in *Weinlandipoma.)*

The type (U.S.N.M. No. 504136) was collected by C. R. Orcutt on a hill east of Morne Rouge, Haiti, on the south coast of the west peninsula. It has 3.5 whorls remaining and measures: Height, 10.4 mm.; greater diameter, 7.2 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 402668 contains 2 topotypes.

WEINLANDIPOMA STRICTECOSTATUM (Maltzan)

PLATE 28, FIGURE 7

1888. *Choanopoma strictecostatum* MALTZAN, Nachr. deutschen malak. Ges., vol. 20, p. 181.
1891. *Choanopoma strictecostatum* CROSSE, Journ. Conchyl., vol. 39, p. 169.

Shell broadly conic, flesh-colored, with faint interrupted spiral bands of brown; the peristome is weakly rayed with brown. Nuclear whorls 2.2, inflated, well rounded, forming a rather pointed apex. Postnuclear whorls inflated, strongly rounded, and marked by distantly spaced, slender, lamellar axial ribs, of which 41 are present on the last turn. These ribs are weakly scalloped at their free edge. Of these scallops, five are present on the first and second turns and six on the last between summit and periphery; the scallop at the summit of the turns is broader than the rest. Between these lamellar axial ribs a slender hairlike thread or several of them may be present. The broad intercostal spaces are marked by numerous, very fine, closely spaced spiral striations. Suture strongly constricted. Periphery inflated, strongly rounded. Base short, inflated, openly umbilicated, and marked by the continuation of the axial ribs and three spiral threads; two faint additional spiral threads are present on the outer edge of the umbilical wall. Aperture circular; peristome double, the inner well exserted; the outer very broadly expanded, of almost the same width all around, adnate to the preceding turn and marked by a series of concentric lamellae. Operculum with almost central nucleus bearing a broad, spiral, obliquely sloping lamella, which is reenforced by numerous obliquely slanting threads.

U.S.N.M. No. 355953 contains 121 specimens collected by John B. Henderson and the author at Miragoane, Haiti, the type locality, on the north coast of the southern peninsula, one of which we have described and figured. This has 3.8 whorls remaining and measures: Height, 8.3 mm.; greater diameter, 6.6 mm.; lesser diameter, 4.6 mm.

One hundred specimens yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	9.9	7.3	4.9
Least	7.1	4.5	3.7
Average	8.6	5.9	4.3

U.S.N.M. No. 379994 contains 194 specimens collected by Eyerdam in a forest half a mile back of Miragoane.

U.S.N.M. No. 380272 contains 217 specimens collected by Eyerdam in woods half a mile north of Miragoane.

U.S.N.M. No. 380114 contains 1 specimen collected by Eyerdam at Miragoane.

U.S.N.M. No. 380055 contains 3 specimens collected by Eyerdam 2 miles northeast of Miragoane.

U.S.N.M. No. 380034 contains 12 specimens collected by Eyerdam 1 mile north of Miragoane.

U.S.N.M. No. 380423 contains 1 specimen collected by Eyerdam under rocks on a wooded hillside west of Miragoane.

This species is readily distinguished from *Weinlandipoma excisum* by having the peristome of the same width all around and in lacking the excised parietal wall element.

WEINLANDIPOMA ORCUTTI, new species

PLATE 28, FIGURE 6

Shell elongate-ovate, flesh-colored, with feeble interrupted spiral bands of brown, which appear as rays on the expanded outer peristome. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose. Postnuclear whorls marked by lamellar axial ribs, of which 38 are present on the last turn. Occasionally a finer axial thread appears between the lamellose elements. The axial ribs bear six fairly strong scallops between the summit and the periphery. These scallops are strongest at the summit and less scalloped at the periphery, while the broad intercostal spaces are marked by rather well pronounced microscopic spiral threads, which are not quite so wide as the spaces that separate them. Suture moderately strongly constricted. Periphery well rounded. Base marked by the axial riblets, which here bear two scallops, while the wall of the moderately broadly open umbilicus has scarcely any indication of scallops. Aperture almost circular; peristome double, the inner exserted and slightly reflected; the outer broadly flaringly expanded, narrower on the parietal wall than the rest and marked by concentric spiral lamellae. Operculum with central nucleus.

The type (U.S.N.M. No. 504137) was collected by C. R. Orcutt on a hill north of Coteaux, Haiti, east of the river. It has 4 whorls remaining and measures: Height, 7.5 mm.; greater diameter, 4.6 mm.; lesser diameter, 3.6 mm.

It resembles most nearly *Weinlandipoma blandii* from which it can readily be differentiated by the much stronger scallops.

U.S.N.M. No. 404731 contains 47 topotypes.

U.S.N.M. No. 403964 contains 3 specimens collected by Orcutt from Anse à Drick.

U.S.N.M. No. 402772 contains 6 specimens collected by Orcutt near Les Cayes.

U.S.N.M. No. 402764 contains 4 specimens collected by Orcutt on a steep wooded slope in a dry ravine at Les Cayes.

U.S.N.M. No. 404964 contains 8 specimens collected by Orcutt at the Shell Sugar Plantation at Les Cayes.

U.S.N.M. No. 403305 contains 15 specimens collected by Orcutt at Aquin.

WEINLANDIPOMA BLANDII (Weinland)

PLATE 28, FIGURE 10

1880. *Choanopoma blandii* WEINLAND, Jahrb. deutschen malak. Ges., vol. 7, p. 341.
1920. *Annularia (Annularia) blandi* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 73.

Shell elongate-conic, very thin, flesh-colored, with broad interrupted spiral bands of pale brown, which conspicuously ray the expanded outer peristome. Nuclear whorls 2, well rounded, microscopically granulose. Postnuclear whorls strongly inflated, well rounded, marked by very strong, lamellar, slightly retractively curved axial ribs, of which 34 are present on the last turn. These axial riblets are strongly expanded into auricles at the summit and feebly scalloped on the rest. The broad spaces between the axial riblets are marked by fine spiral striations. Suture strongly constricted. Periphery strongly rounded. Base moderately long, inflated, strongly rounded and marked by the continuation of the axial riblets which extend into the umbilicus and two strong scallops; within the umbilicus three lesser scallops are present. Last whorl solute for one-third of a turn. Aperture circular; peristome double, the inner slightly exserted and slightly reflected; the outer moderately, broadly expanded, narrower on the parietal wall than on the rest, marked by a series of prominent concentric lamellae. Operculum with central nucleus and a moderately elevated, obliquely reflected, spiral lamella.

The specimen described and figured (U.S.N.M. No. 355940) was collected by John B. Henderson and the author at Port-au-Prince, Haiti, the type locality. It has 4 whorls remaining and measures: Height, 7.9 mm.; greater diameter, 4.9 mm.; lesser diameter, 3.9 mm.

U.S.N.M. No. 355940 contains 112 topotypes, 100 of which yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	8.5	5.0	3.9
Least	5.2	3.3	2.7
Average	6.7	4.3	3.3

U.S.N.M. No. 355941 contains 118 specimens collected by Henderson and Simpson at Port-au-Prince.

U.S.N.M. No. 355938 contains 17 specimens collected by Henderson at Petit Gonave Island.

U.S.N.M. No. 380271 contains 4 specimens collected by Eyerdam one-half mile north of Miragoane.

This species is nearest related to *Weinlandipoma orcutti,* from which its feeble axial ribs and the stronger auricles at the summit will readily differentiate it.

WEINLANDIPOMA MILLERI, new species

Plate 28, Figure 9

Shell very small, ovate, thin, semitranslucent, flesh-colored, with mere indications of interrupted spiral bands of brown and very feeble rays of brown on the outer peristome. Nuclear whorls 2, strongly rounded, forming a somewhat mammillated apex. Postnuclear whorls inflated, strongly rounded, and marked by slender lamellose axial riblets, of which 52 are present on the last turn in the type. Under high magnification the intercostal spaces show microscopic lirations. Suture decidedly constricted. Periphery strongly rounded. Base moderately long, strongly rounded, openly umbilicated and marked by the continuation of the axial ribs which extend over the umbilical wall; also by the fine spiral sculpture. The last whorl is decidedly solute for almost half a turn. Aperture almost circular; peristome double, the inner exserted; the outer moderately broadly expanded on the outer lip, less so on the inner and parietal wall. Operculum with central nucleus and a decidedly flaring, moderately elevated spiral lamella.

The type (U.S.N.M. No. 504139) was collected by Gerrit S. Miller, Jr., in the Bahoruco Mountains, at Polo, Barahona District, Dominican Republic, at an elevation of 2,000 feet. It has 3.3 whorls remaining and measures: Height, 4.8 mm.; greater diameter, 3.2 mm.; lesser diameter, 2.8 mm.

This species is most nearly related to *Weinlandipoma meridianum,* from which it can readily be differentiated by its smaller size and much more numerous axial ribs.

U.S.N.M. No. 389878 contains 22 topotypes from the same source.

WEINLANDIPOMA MERIDIANUM, new species

Plate 28, Figure 8

Shell very small, thin, flesh-colored, with three interrupted, faint spiral bands of brown, of which one is a little below the summit, another a little below the middle, and the last at the periphery of the turn. Nuclear whorls 2, forming a mammillated apex. The postnuclear whorls are strongly rounded and marked by slender lamellose axial ribs, which are slightly expanded into auricles at the summit. Of these ribs, 36 are present on the last turn. These ribs are not scalloped. Occasionally a fine axial thread occurs between these ribs, while the broad intercostal spaces are marked with exceedingly fine, microscopic spiral lirations about as wide as the spaces that separate them. Suture strongly constricted. Periphery well rounded. Base short, well rounded, openly umbilicated, and marked by the continuation of the axial ribs, which extend strongly over the umbilical wall. Both base and umbilical wall are also marked by the spiral lirations. The last whorl is solute for about two-tenths of a turn. Aperture circular; peristome double, the inner slightly expanded; the outer narrowly expanded, a trifle wider at the posterior angle than on the rest and marked by several concentric lamellae. Operculum with central nucleus and a quite strongly elevated, broadly flaring, obliquely directed spiral lamella.

The type (U.S.N.M. No. 504138) was collected by Orcutt on the Gimbi River in the neighborhood of Saltrou, Haiti. It has 4 whorls remaining and measures: Height, 5.7 mm.; greater diameter, 3.3 mm.; lesser diameter, 2.9 mm.

U.S.N.M. No. 402168 contains 18 topotypes from the same source.

U.S.N.M. No. 401994 contains 17 specimens collected by Orcutt on the east side of the Gimbi River.

U.S.N.M. No. 402552 contains 13 specimens collected by Orcutt in the Gimbi Mountains.

U.S.N.M. No. 420506 contains 67 specimens collected by Orcutt on the road between Bodarie and Saltrou.

U.S.N.M. No. 402609 contains 20 specimens collected by Orcutt near Gimbi Town.

U.S.N.M. No. 402030 contains 355 specimens collected by Orcutt on the east bank of Gimbi River near Saltrou.

U.S.N.M. No. 402585 contains 26 specimens collected by Orcutt on the first hill east of Saltrou near the sea.

U.S.N.M. No. 402674 contains 279 specimens collected by Orcutt on a hill east of Morne Rouge.

U.S.N.M. No. 403458 contains 56 specimens collected by Orcutt in the mountains east of Morne Rouge, near the sea.

This is most nearly related to *Weinlandipoma milleri,* from which its larger size and more distantly spaced and less numerous ribs will readily differentiate it.

Genus TROSCHELVINDEX H. B. Baker

1924. *Troschelvindex* H. B. Baker, Nautilus, vol. 37, p. 90.

Shell elongate-conic, marked by rounded axial ribs and spiral cords, the combination forming a fenestrated pattern. Some of the axial ribs are gathered into conspicuous tufts at the summit. Peristome double. Operculum with a well-elevated, obliquely outward-directed spiral lamella.

Type species: *Cyclostoma candeana* Orbigny = *Troschelvindex candeana* (Orbigny).

KEY TO THE HISPANIOLAN SPECIES OF TROSCHELVINDEX

- Tufting at the summit of the whorls rare.
  - Shell stout .... **tortuensis**
  - Shell slender .... **miragoanensis**
- Tufting at the summit of the whorls not rare.
  - Outer peristome expanded.
    - Umbilical wall with 1 spiral cord .... **laferrierensis**
    - Umbilical wall with 6 spiral cords .... **abbotti**
  - Outer peristome not expanded .... **gonaivensis**

TROSCHELVINDEX TORTUENSIS, new species

Plate 29, Figure 3

Shell broadly elongate-conic, flesh-colored, with irregular axial streaks of rust brown. Nuclear whorls 2, inflated, strongly rounded, microscopically granulose. Postnuclear whorls well rounded, slightly shouldered at the summit, and marked by retractively slanting axial ribs, which are low and rounded and become slightly expanded toward the summit, which they crenulate. Of these axial ribs, 73 are present on the last whorl. The spiral sculpture consists of low rounded threads equaling the axial ribs in strength and rendering these feebly tuberculated at their junction. Of these spiral threads, 13 are present between the summit and the periphery. The combination of the axial ribs and the spiral threads gives to the whorls a fenestrated pattern. Suture well constricted. Periphery well rounded. Base moderately long, well rounded, and marked by the continuation of the axial ribs, which pass undiminished over the umbilical wall, and by seven spiral cords of the same strength as those on the spire. The umbilicus is moderately broad and bears on its wall, in addition to the ribs, eight spiral threads, which are a little stronger than the rest. Aperture broadly oval; peristome double, the inner expanded and reflected over and appressed to the outer. This is moderately broadly expanded, somewhat auriculated at the posterior angle and slightly flaring at the junction of the inner lip and the base. Operculum with the nucleus halfway between marginal and central, bearing a moderately elevated, obliquely flaring, expanded spiral lamella.

The type (U.S.N.M. No. 504126) was collected by Mr. and Mrs. E. C. Leonard near Palmiste, Tortue Island, Haiti. It has 4.8 whorls remaining and measures: Height, 14.0 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 504127, contains 11 topotypes.

Still another lot of ten specimens, U.S.N.M. No. 504128, was collected by the Leonards on the west side of La Valle, Tortue Island.

TROSCHELVINDEX MIRAGOANENSIS, new species

PLATE 29, FIGURE 2

Shell elongate-conic, rather slender, varying from flesh-color to pale brown with interrupted spiral bands of brown, which conspicuously ray the outer peristome. Nuclear whorls decollated in all our specimens. Postnuclear whorls moderately well rounded and marked by strong sublamellar axial ribs, which are slightly wavy, of which 74 are present on the last turn. These riblets occasionally fuse to form slight tufts. Many of them are expanded at the summit into slight auricles; usually a strong auriculated one is followed by a number of slightly smaller auricles, a sequence which gives a peculiar pattern to the summit of the turns. The spiral sculpture is indicated by 5 very elongate, feeble nodules on the ribs, although it does not appear to be present in the intercostal spaces. Suture quite strongly constricted. Periphery well rounded. Base rather long and marked by an elongate thickening on the ribs. Umbilicus open bearing 2 similar folds on the ribs near its outer edge.

The type (U.S.N.M. No. 380104) was collected by W. J. Eyerdam half a mile north of Miragoane, Haiti. It has 6 whorls remaining and measures: Height, 12.8 mm.; greater diameter, 6.2 mm.; lesser diameter, 4.6 mm.

U.S.N.M. No. 380364 contains 85 topotypes from the same source.

U.S.N.M. No. 380068 contains 26 specimens from the top of Mount Rochelois.

The wavy ribs of this species will readily differentiate it from the three others known from Haiti.

TROSCHELVINDEX LAFERRIERENSIS, new species

Plate 29, Figure 9

Shell elongate-conic, shining, pale orange, with conspicuous spots, which form interrupted bands arranged in both spiral and axial series and which render the peristome of the last whorl conspicuously rayed. Five of these spiral threads are present on the spire, two on the base, and one at the edge of the umbilicus. The extreme tip of the nuclear whorls also is chestnut-brown. Nuclear whorls 2, well rounded, microscopically granulose. Postnuclear whorls marked by slightly retractively curved, low, rounded axial ribs, which are a little wider than the spaces that separate them and which at irregular intervals are gathered into tufts at the summit. The spiral sculpture consists of equally depressed rounded threads equaling the axial ribs in strength, the combination of which lends to the surface of the shell a somewhat fenestrated pattern and to the junction of the two elements a very feebly nodulose aspect. Seventeen of these threads are present between summit and periphery on the last whorl. Of the axial ribs 87 are present on the last turn. Suture well constricted. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, openly umbilicated and marked by the continuation of the axial ribs and 10 feeble spiral threads. The umbilical wall also bears the attenuated axial ribs and one spiral keel. Aperture oval; peristome double, the inner reflected and appressed to the outer, separated by a mere line; The outer expanded on the outer and basal lip and the anterior portion of the inner lip, narrow on the columellar and parietal wall. Operculum with submarginal nucleus, bearing a slender, obliquely slanting spiral lamella.

The type (U.S.N.M. No. 504129) was collected by Henderson and Simpson at La Ferriere. It has 7 whorls remaining and measures: Height, 15.6 mm.; greater diameter, 7.2 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 162931 contains 34 topotypes.

This species resembles *Troschelvindex abbotti,* from which it can be readily distinguished by the single spiral keel on the umbilical wall.

TROSCHELVINDEX ABBOTTI (Henderson and Bartsch)

Plate 29, Figure 1

1920. *Tudora (Tudora) abbotti* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, pp. 81–82.

Shell broadly elongate-conic, flesh-colored, with interrupted spiral bands of brown, which are apparent within the aperture and ray the outer peristome. The extreme nuclear tip is also brown. Nuclear whorls 2, microscopically granulose. Postnuclear whorls marked by retractively slanting, rounded ribs, which at irregular intervals are gathered into tufts at the summit. Of these ribs 93 are present on the last whorl. The spiral sculpture consists of threads a little less strong than the axial ribs. Of these, 13 are present between the summit and the periphery on the last turn. Suture strongly constricted, rendered crenulated by the tufts. Periphery inflated, strongly rounded. Base moderately long, inflated, strongly rounded and marked by the continuation of the axial ribs and 10 spiral threads. Umbilicus rather open and marked by the feeble continuation of the axial ribs and six spiral threads. Aperture broadly oval. Peristome double, the inner expanded and reflected and appressed to the outer; the outer moderately broadly expanded, slightly auriculated at the posterior angle and almost absent on the columellar and the parietal wall. Operculum with a subcentral nucleus and a broad flaring lamella, which is marked by slender, retractively slanting threads.

The type (U.S.N.M. No. 504130) was collected by Dr. W. L. Abbott at Port-au-Paix, Haiti. It has 7 whorls and measures: Height, 148 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.8 mm.

U.S.N.M. No. 218044 contains 14 topotypes from the same source.

This species resembles most nearly *Troschelvindex laferrierensis* but is easily distinguished from it by its paler coloration and the greater number of spiral cords on the umbilical wall.

TROSCHELVINDEX GONAIVENSIS, new species

PLATE 29, FIGURE 7

Shell elongate-conic, flesh-colored, with a yellowish tinge, marked by dots arranged in both axial and spiral series. Of these bands six are present between the summit and the suture on the spire and four on the base. The outer rib is rayed with similar elongate spots of brown. There is also a dark dot at the beginning of the nucleus. Nuclear whorls 1.8, inflated, strongly rounded, forming a depressed apex. Postnuclear whorls strongly rounded and marked by rather strong, rounded, closely spaced axial ribs, which are gathered into tufts at the appressed summit. The spiral sculpture consists of moderately strong threads which render the axial riblets feebly nodulose at their junction. Of these threads, 15 are present between the summit and the periphery on the last turn. The base is also marked by spiral threads, but they gradually grow less strong from the periphery toward the umbilicus, while the umbilicus bears three much stronger spiral threads and a fourth less strong, forming the innermost element. Suture constricted. Periphery well rounded. Base moderately broadly umbilicated. Aperture ovate; peristome double, the inner reflected and appressed to the outer; the outer narrowly expanded. Operculum with a strong outward flaring lamella, which is a little more than one-half the width of the basal chondroid plate. The lamella is marked by strong, retractively curved threads.

The type (U.S.N.M. No. 393770) I collected 10 miles north of Gonaïves. It has 7.8 whorls and measures: Height, 16.7 mm.; greater diameter, 8.0 mm.; lesser diameter, 6.5 mm.

U.S.N.M. No. 504131 contains a topotype from the same source.

U.S.N.M. No. 393788 contains 2 specimens taken by Bartsch 15 miles north of Gonaïves.

U.S.N.M. No. 393803 contains 4 specimens taken by Bartsch at Peterborough Mountain, north of Ennery.

This species resembles *Troschelvindex abbotti*, but can easily be distinguished from it by not having the broadly expanded outer peristome.

CHRISTOPHIPOMA, new genus

Shell of ovoid outline. The postnuclear whorls are marked by axial ribs, which are of two strengths, the interval between the strong ribs bearing several finer threads. Spiral sculpture on the spire is indicated by a few series of feeble nodules. The umbilical wall, however, bears strong spiral cords. Aperture circular, with the inner peristome very strongly exserted, and the outer very decidedly expanded. Operculum with subcentral nucleus, bearing a broadly obliquely extended, thin lamella, which does not extend to the outer edge of the turns of the chondroid basal plate. The lamella is marked by retractively curved, slender threads.

Type species: *Chondropoma bertini* Maltzan = *Christophipoma bertini* (Maltzan).

The shells of this genus somewhat resemble *Lugarenia* of Cuba, from which they differ in having the aperture circular, inner peristome decidedly exserted, and the outer broadly expanded. The opercular lamella here also is oblique instead of flattened to parallel the chondroid basal plate.

CHRISTOPHIPOMA BERTINI (Maltzan)

Shell elongate-ovate, flesh-colored, marked with spots of brown, which are arranged in both axial and spiral series; the outer peristome is rayed. Nuclear whorls almost 2, well rounded, smooth, forming a rather small apex. Postnuclear whorls inflated, narrowly channeled at the summit, marked by lamellar axial riblets between which finer axial threads are present. This differentiation between the stronger and lesser axial ribs is not so pronounced on the last whorl. There are several lines of nodules on the ribs near the summit. Suture strongly constricted, rendered crenulated by the axial riblets. Periphery inflated, strongly rounded. Base moderately long, openly umbilicated and marked by the continuation of the axial ribs. On the umbilical wall spiral threads are present, which are rendered weakly nodulose by the axial ribs. Last whorl solute. Aperture subcircular; peristome double, the inner strongly exserted; the outer broadly, flaringly expanded. Operculum with almost central nucleus and a strongly elevated, decidedly oblique lamella, which is marked by feeble, retractively curved threads.

The species comes from northern Haiti, where it breaks up into two races as follows:

KEY TO THE SUBSPECIES OF CHRISTOPHIPOMA BERTINI

Shell broadly ovate	bertini
Shell elongate-ovate	gracillimum

CHRISTOPHIPOMA BERTINI BERTINI (Maltzan)

Plate 28, Figure 13

1888. *Choanopoma bertini* Maltzan, Nachr. deutschen malak. Ges., vol. 20, p. 181
1920. *Annularia (Annularella) bertini* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 74.

This subspecies is broadly ovate and is marked with small brown spots arranged in both axial and spiral series. It is also faintly rayed. The last whorl has 77 of the lamellar axial ribs between which one to six weaker axial threads are present. The spiral sculpture is indicated by four very feeble nodules on the upper portion of the whorls. The umbilicus has eight strong spiral cords.

The specimen figured (U.S.N.M. No. 122962) was collected by Henderson and Simpson at Sans Souci, Haiti. It has 5.5 whorls remaining and measures: Height, 13.2 mm.; greater diameter, 10.3 mm.; lesser diameter, 6.7 mm.

The broadly ovate shape will readily distinguish this from the other subspecies.

U.S.N.M. No. 162961 contains 37 specimens from the same source.

U.S.N.M. No. 504132 contains 5 semifossil specimens collected by Henderson at Cap-Haïtien.

CHRISTOPHIPOMA BERTINI GRACILLIMUM (Maltzan)

Plate 28, Figure 12

1888. *Choanopoma bertini gracillima* Maltzan, Nach. deutschen malak. Ges., vol. 20, p. 181.
1920. *Annularia (Annularella) bertini gracillima* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 74.

Shell elongate-ovate, flesh-colored, marked with distantly spaced, small spots of brown, which are arranged in axial and spiral series. On the last whorl of this subspecies the differentiation between the coarser and finer spiral threads is less pronounced than on the early ones, where two to five are present between the stronger lamellar elements. Of the strong ribs, 127 are present on the last turn in the individual figured. There are four feeble nodules on the ribs near the summit and 11 spiral cords in the umbilicus.

The specimen figured (U.S.N.M. No. 162963) was collected by Henderson and Simpson at La Ferriere, Haiti. It is a complete specimen having 7 whorls and measures: Height, 16.5 mm.; greater diameter, 10.0 mm.; lesser diameter, 8.0 mm.

The more slender shape will readily distinguish this from typical *bertini*.

U.S.N.M. No. 162964 contains 59 specimens from the same source.

INCERTIPOMA

Incertipoma is a designation for a heterogeneous group of annulariid mollusks of which the operculum is unknown and whose other shell characters do not conclusively reveal systematic relationship.

The name is used in lieu of a generic name and is therefore to serve as a catch-all for all annulariids that cannot be definitely assigned to their proper genus. For these, it is a mere temporary designation from which they are to be relieved when adequate information will come to hand that will make it possible to place them in their proper genus.

Incertipoma is never to have a genotype designated and is intended to last only as long as imperfectly known annulariid species exist.

KEY TO THE SPECIES OF INCERTIPOMA

- Peristome simple.
  - Shell of turbinid outline.......... **subglobosum**
  - Shell of elongate-conic outline.
    - Axial ribs forming tufts at the summit.......... **ferox**
    - Axial ribs distinct at the summit.......... **elegantissimum**
- Peristome double.
  - Shell depressed-helicoid.......... **solutum**
  - Shell not depressed-helicoid.
    - Shell of turbinid outline.......... **lamellosum**
    - Shell not of turbinid outline.
      - Shell elongate-ovate.
        - Spiral sculpture restricted to umbilicus.......... **virile**
        - Spiral sculpture not restricted to umbilicus.
          - Last whorl adnate.
            - Shell dark purple.......... **reeveanum**
            - Shell flesh colored.......... **rete**
          - Last whorl solute.
            - Shell very thin.......... **diaphanum**
            - Shell not thin.
              - Outer peristome reflexed.......... **difficile**
              - Outer peristome not reflexed.......... **goavense**
      - Shell not elongate-ovate.
        - Shell elongate-conic.
          - Axial ribs forming tufts at the summit.
            - Peristome strongly rayed.......... **marinum**
            - Peristome not rayed.......... **samanicolum**
          - Axial ribs not forming tufts at the summit
            - Shell slender.......... **nesiotes**
            - Shell not slender.......... **sanjuanense**
        - Shell cylindroconic.......... **dominicense**

INCERTIPOMA SUBGLOBOSUM, new species

PLATE 29, FIGURE 6

Shell subglobose, the nuclear whorls and the first postnuclear turn chestnut-brown; the rest pale yellow marked by more or less arrow-shaped areas of brown, whose point is directed backward, and which are arranged in both axial and spiral series. These markings are present on both spire and base. Nuclear whorls 1.7, inflated, strongly rounded, forming a rather conspicuous apex. Postnuclear whorls decidedly inflated and strongly rounded; the early ones marked by rather strong axial ribs which become weaker on the later turns and obsolete on the last whorl. On the early turns the axial ribs are a little broader than the spaces that separate them. Suture strongly constricted. Periphery inflated, strongly rounded. Base short, very strongly rounded, very openly umbilicated and marked by a single spiral thread on the umbilical wall a little within the edge of the umbilicus. Last whorl solute for about one-fifth of a turn. Aperture broadly ovate; peristome simple, slightly expanded and slightly reflected. Operculum?

The type (U.S.N.M. No. 504141) was collected by W. J. Eyerdam at Trou Louise, Gonave Island. It has 4.5 whorls remaining and measures: Height, 18.0 mm.; greater diameter, 14.7 mm.; lesser diameter, 12.0 mm.

U.S.N.M. No. 380245 contains 15 topotypes.

U.S.N.M. No. 380218 contains 1 specimen collected by Eyerdam near South Abricots, Gonave Island.

U.S.N.M. No. 504142 contains 1 specimen from the Chamberlain Collection marked "Gonave Island."

U.S.N.M. No. 499359 contains 1 specimen collected by Catherine Parrish at Point Fantasque, Gonave Island.

U.S.N.M. No. 504143 contains 6 specimens collected at Petit Gonave Island.

Most of the specimens are crab-carried shells. It seems remarkable that such a fine species should have failed to yield living specimens.

INCERTIPOMA FEROX, new species

Plate 29, Figure 4

Shell broadly elongate-conic, bluish white, with very small dots of pale brown, which are arranged in both axial and spiral series. Spirally they are rather distantly spaced; six of these are present between the summit and the periphery of the last whorl and four are on the base; those on the base are a little larger than the rest. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded and marked by low, rounded, rather coarse, closely spaced axial ribs, which are gathered into heavy toothlike tufts at the summit. Of these ribs, 79 are present on the last whorl. The spiral sculpture consists of cords a little less strong than the axial ribs. Of these, 16 are present between the summit and the periphery on the last turn. Suture quite strongly constricted. Base rather long, openly umbilicated, well rounded, and marked by the continuation of the axial ribs and 10 spiral cords. The axial ribs also extend upon the umbilical wall, which also bears one strong and several finer spiral threads. Aperture ovate; peristome simple, slightly produced at the junction of the outer and basal lip, forming a weak angle at the posterior angle; the rest moderately strongly expanded and reflected, adnate to the preceding turn. Operculum?

The type (U.S.N.M. No. 504140) was collected by Mr. and Mrs. E. C. Leonard at Bombardopolis, Haiti. It has 4.5 whorls and measures: Height, 12.5 mm.; greater diameter, 6.8 mm.; lesser diameter, 5.8 mm.

INCERTIPOMA ELEGANTISSIMUM, new species

PLATE 29, FIGURE 5

Shell elongate-conic, flesh-colored, with interrupted spiral bands of brown. These bands consist of large blotches distantly spaced and arranged in both axial and spiral series. There are three of them between the summit and the periphery and one on the base. Nuclear whorls almost 2, large, strongly rounded, microscopically granulose. Postnuclear whorls inflated, strongly rounded, appressed at the summit, and marked by retractively slanting, sublamellar axial riblets, of which 58 are present on the last turn. These ribs extend over the base and umbilical wall. There is no spiral sculpture. Suture very strongly constricted. Base rather short, inflated, strongly rounded, openly umbilicated. Last whorl solute for about one-tenth of a turn. Aperture ovate; peristome simple, moderately expanded and obliquely reflected and marked at the outer edge by some lines of growth. Operculum?

The type (U.S.N.M. No. 402573) was collected by C. R. Orcutt east of Saltrou, Haiti, on the south side of the south peninsula. It is a complete specimen having 6.4 whorls and measures: Height, 9.5 mm.; greater diameter, 4.8 mm.; lesser diameter, 4.0 mm.

U.S.N.M. No. 403601 contains 4 young specimens collected by Orcutt at St. Louis, near Aquin, Haiti, which I am tentatively referring here.

INCERTIPOMA SOLUTUM (Pfeiffer)

PLATE 30, FIGURES 2–4

1852. *Choanopoma solutum* RICHARD, PFEIFFER, Conspectus cyclostomaceorum, pp. 27, 60.

1854. *Cyclostoma solutum* RICHARD, PFEIFFER, Martini-Chemnitz Conchylien Cabinet, ed. 2, vol. 1, sect. 19, p. 295, pl. 39, figs. 8-10.

1920. *Abbottella solutum* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 75.

Shell umbilicated, depressed, with densely crowded threadlike axial ribs, with silky sheen, whitish, with interrupted red-brown spiral lines. Spire little elevated, sharply pointed. Suture channeled, indistinctly denticulated. Whorls 5, convex, the last circular in cross section, somewhat decurrent and solute toward the end; the underside rendered reticulated by the spiral cords on the umbilical wall. Aperture oblique, almost circular; peristome double, the inner continuous and exserted; the outer white, extended at a right angle and expanded above, arched, and attached caplike to the preceding whorl. Height, 5.5 mm.; diameter, 13 mm. (Cuming Collection.) Operculum unknown. Habitat, Island of Santo Domingo.

The above description is a translation of Pfeiffer's as published in Martini-Chemnitz.

I have seen nothing from Hispaniola that fits Pfeiffer's description and figure. The spiral cords on the umbilical wall rule out *Rolleia,* which it otherwise resembles. Of *Abbottella,* on the other hand, we have seen no specimens without spiral threads on the spire.

INCERTIPOMA LAMELLOSUM, new species

PLATE 29, FIGURE 8

Shell of turbinid outline, buff, with four bands of brown between the summit and the periphery and four on the base. Nuclear whorls? Postnuclear whorls decidedly inflated and very strongly rounded and marked by strong lamellar axial ribs, of which 76 are present on the last whorl; between these finer axial threads are present. The finer threads may vary from one to five. The spiral sculpture consists of fine threads that render the axial ribs conspicuously nodulose, almost spinose. Of these spiral threads, five are present on the antepenultimate turn between the summit and the suture, while on the last turn 10 occupy the same space. Suture very strongly constricted. Base short, very openly umbilicated, strongly rounded, and marked by the continuation of the axial ribs, which also pass over the umbilical wall. The base bears three strong spiral cords, and on the umbilical wall 11 additional spiral threads are present. On the base and umbilical wall the junctions of the axial ribs and spiral threads form nodules, but not as conspicuous as those on the spire. The last whorl is solute for about one-quarter of a turn. Aperture circular; peristome double, the outer broadly flaringly expanded and marked by concentric lamellae; the inner is decidedly exserted and very slightly reflected. Operculum?

The type (U.S.N.M. No. 504144) was collected by Dr. W. L. Abbott at Trou de Bon Dieu near Port de Paix, Haiti. It has 4.7 whorls remaining and measures: Height, 11.0 mm.; greater diameter, 8.7 mm.; lesser diameter, 6.5 mm.

It seems a pity that we do not possess the necessary information to enable me to allocate this splendid species in its proper systematic position in the family.

INCERTIPOMA VIRILE, new species

PLATE 30, FIGURE 8

Shell elongate-ovate, yellowish white. Nuclear whorls decollated in all our specimens. Postnuclear whorls strongly rounded, very narrowly shouldered at the summit and marked by rather weak, almost vertical axial riblets, of which 112 are present on the last whorl. These ribs are low and rounded and vary somewhat in spacing and strength. Suture rendered conspicuous by the slight shouldering at the summit. Periphery well rounded. Base short, well rounded, and openly umbilicated and marked by the feeble continuation of the axial ribs. The umbilical wall bears three strong cords near its outer edge as well as the feeble continuation of the axial ribs. Aperture oval; peristome double, the outer enormously expanded, forming a very strong auricle at the posterior angle and a very broad up-curved expansion at the junction of the outer and basal lip, covering the preceding turn at the parietal wall to quite an extent, and marked by concentric lamellae; the inner very strongly exserted and slightly reflected at the outer edge. Operculum?

The type (U.S.N.M. No. 504145) was collected by C. R. Orcutt in Haiti without a definite locality label. It has 3.5 whorls remaining and measures: Height, 18.7 mm.; greater diameter, 13.3 mm.; lesser diameter, 9.9 mm.

The outer peristome from the posterior angle to the junction of the inner and basal lip measures, 13.4 mm.; while the inner peristome on the outside at the same place measures 7.0 mm.

This enormous expansion of the peristome is quite unique as far as Haiti is concerned.

U.S.N.M. No. 425379 contains 23 topotypes from the same source.

INCERTIPOMA REEVEANUM (Pfeiffer)

PLATE 18, FIGURE 5

1850. *Cyclostoma decussatum* SOWERBY, Thesaurus conchyliorum, vol. 1, p. 165a, pl. 31A, figs. 300, 301. (Not *Cyclostoma decussatum* LAMARCK, Histoire naturelle des animaux sans vertèbres, vol. 6, pt. 2, p. 147, 1822.)

1852. *Licina reeveana* PFEIFFER, Monographia pneumonopomorum viventium, p. 153.

This is probably a *Licina*. Its figure resembles *Licina cayemetensis*, but none of the several hundred specimens of that possess the conspicuous auricle figured by Sowerby.

I have seen nothing referable to it so copy Sowerby's description and figure:

"Shell oblong, pyramidal, fuscous or blackish, decussately grooved, with an obtuse decollated apex; volutions four, rounded; suture distinct crenulated; aperture somewhat elliptical, slightly acuminated posteriorly; peritreme double, inner narrow, slightly elevated, outer rather wide, reflected, partly covering the small umbilicus."

INCERTIPOMA RETE (Weinland)

1862. *Cyclostoma rete* WEINLAND, Malak. Blätter, vol. 9, p. 195.

1862. *Licina? rete* PFEIFFER, Malak. Blätter, vol. 9, p. 200.

Of this species Weinland had only a single specimen collected in the forest near Debarras. He describes it as follows:

Shell compressedly umbilicated, ovate-turrited, solid, reticulated by longitudinal and spiral threads which are not much elevated, subvariciform, shining, flesh colored with a violet tinge. Spire regularly attenuated, sublate-truncate. Suture simple. The whorls remaining 4, convex, the last solute anteriorly. Aperture subvertical, oval; peristome double, the inner continuous, expanded and adnate to the outer; the outer flat, subequal, a little narrower on the umbilical wall and subreflexed. Operculum? Length, 30.0 mm.; diameter, 16.0 mm.; aperture with the peristome, 15.5 mm. long and 13.5 mm. broad.

The single specimen of this beautiful species is easily differentiated from *Cyclostoma habichii* Weinland by the free last whorl as well as the difference in rotundity of the whorls.

I have not been able to satisfy the above description with any of the material from the western part of the south peninsula of Haiti and therefore refer it to *Incertipoma.*

INCERTIPOMA DIAPHANUM, new species

Plate 30, Figure 6

Shell elongate-ovate, very thin, translucent, with rather distantly spaced, squarish or rounded spots, which are arranged in both axial and spiral series. Of these spots five are present on the last whorl between the summit and the periphery and two on the base. The outer peristome shows these spots as rays. Nuclear whorls about 2, inflated, strongly rounded, microscopically granulose, forming a small apex. Postnuclear whorls inflated, strongly rounded, slightly shouldered at the summit, and marked by weak, retractively curved axial riblets which are low, rounded and very regularly spaced. Of these, 128 are present on the last turn. The spiral sculpture consists of weak threads about equaling the riblets in strength. Of these, 25 are present between the summit and the periphery on the last whorl. The junctions of the axial threads and spiral cords show the merest indication of nodulation. Suture strongly constricted. Periphery inflated, strongly rounded. Base rather short, inflated, strongly rounded, broadly openly umbilicated and marked by the feeble continuation of the axial ribs and 16 spiral threads which equal those on the spire in strength. The umbilical wall also shows the feeble continuation of the axial ribs and 13 spiral threads. Here they are a little stronger than on the base. Last whorl solute for about one-tenth of a turn. Aperture broadly ovate; peristome double, the outer flaringly and reflectedly expanded on the outer and basal lip, slightly auriculated at the posterior angle, narrower on the parietal wall and widest at the junction of the inner and basal lip; the inner is slightly exserted, distinct at the posterior angle and on the base, fusing on the parietal wall and outer lip with the outer peristome. Operculum?

The type (U.S.N.M. No. 504146) I collected on Peterborough Mountain, 104 miles north of Port-au-Prince, Haiti. It is a complete specimen having 7 whorls and measures: Height, 18.6 mm.; greater diameter, 10.8 mm.; lesser diameter, 8.4 mm.

U.S.N.M. No. 393015 contains 47 topotypes from the same source.

U.S.N.M. No. 392855 contains 44 specimens taken 96 miles north of Port-au-Prince.

Since I failed to get opercula with these specimens, they must be left in this uncertain position.

INCERTIPOMA DIFFICILE, new species

Plate 31, Figure 3

Shell elongate-ovate, white, with a yellowish tinge and an interrupted spiral band of brilliantly reddish-brown spots on the parietal wall of the deeply channeled suture. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded and marked by slightly retractively curved axial riblets, of which 94 are present on the last turn. These ribs render the summit of the whorls conspicuously denticulated. In addition to the axial sculpture, the whorls are marked by spiral threads about as strong as the axial ribs, of which 13 occur on the last turn between the summit and the periphery, 10 on the base, and 10+ on the umbilical wall. The junctions of the axial ribs and spiral threads form low rounded nodules. Suture deeply channeled. Periphery well rounded. Base moderately long, strongly rounded, openly umbilicated. Here, as well as in the umbilicus, the junctions of the axial and spiral sculpture produce nodules which are even stronger than those on the spire. The last whorl is solute for about one-fourth of a turn with a strong carina following the posterior angle. Aperture oval; peristome double, the outer moderately broadly expanded, a little more so on the inner lip, forming a moderately strong auricle at the posterior angle and marked by concentric lines of growth, and backward reflected; the inner peristome is exserted and reflected. Operculum?

The specimen that I have described and figured (U.S.N.M. No. 504147) comes from the Redfield Collection and bears the label "*Licina reeveana* Pfeiffer," which of course, it is not.

There are certain features about this shell, the moderately broadly expanded and decided reflected peristome, for example, which recall *Licina cayemitensis.*

INCERTIPOMA GOAVENSE, new species

Plate 31, Figure 2

Shell rather large and stout, pale orange-brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls strongly rounded, marked by strong lamellar, almost vertical axial ribs, of which 122 are present on the last turn. The spiral sculpture consists of strong threads, of which 12 are present between the summit and the periphery of the last turn. Of these spiral cords, the one at the shoulder is broader than the rest, and here the axial riblets are expanded into scallops which strongly denticulate the summit. The junctions of the axial ribs and spiral threads on the rest of the shell form elongated nodules which have their long axis parallel with the axial sculpture. Suture deeply and broadly channeled. Periphery well rounded. Base moderately long, well rounded, openly umbilicated, and marked by the continuation of the axial ribs and eight spiral threads equaling those on the spire. The umbilical wall, which is also crossed by the enfeebled axial ribs, bears 12 spiral threads, which are stronger than those on the base. Aperture broadly oval; peristome double, the outer broadly expanded at the junction of the basal and inner lip, forming a conspicuous auricle at the posterior angle, narrow on the outer lip and parietal wall and marked by concentric lamellae; the inner strongly exserted and decidedly reflected at the outer and basal lip. Operculum unknown.

The type (U.S.N.M. No. 403807) was collected by C. R. Orcutt at Petit Goave, Haiti, on the north coast of the south peninsula. It has 3.7 whorls remaining and measures: Height, 23.0 mm.; greater diameter, 17.8 mm.; lesser diameter, 11.9 mm.

U.S.N.M. No. 403053 contains 9 topotypes.

INCERTIPOMA MARINUM (Reeve)

PLATE 31, FIGURE 1

1863. *Chondropoma marinum* REEVE, Conchologia iconica, vol. 14, pl. 8, No. 57.

Shell rather compressedly umbilicated, oblong-turrited, fulvous, longitudinally streaked with double rows of chestnut dots, banded at the base; whorls convex, longitudinally densely thread-ridged, crenulated at the sutures; aperture obliquely ovate, a little expanded, rayed.

Habitat: Island of Haiti (Weinland).

The above description and my figure are copied from Reeve, who cites Weinland as the author of the name as published in the Malakozoologische Blätter for 1862. I have been unable to find such a description. Pfeiffer and others have referred this to *Sallepoma emilianum* (Weinland), with which determination I cannot agree, for Reeve plainly figures a shell with rayed peristome. Until a reexamination of Weinland's type can be made, it will be impossible even to suggest the superspecific affinity of the shell. For this reason I have placed it in the catchall, *Incertipoma*.

INCERTIPOMA SAMANICOLUM, new species

PLATE 31, FIGURE 4

Shell elongate-conic, yellowish. Nuclear whorls decollated in all our specimens. Postnuclear whorls marked by low, depressed axial ribs, which are irregular in strength, spacing, and development and which form strong nodulose tufts at the summit. The spiral sculpture consists of rather irregularly developed threads, of which 17 are present between the summit and the periphery, and 10 on the base, and 4 on the umbilical wall. Suture strongly constricted. Base well rounded, moderately broadly umbilicated. Aperture ovate; peristome double, the outer flaringly expanded on the inner lip and at the posterior angle where it forms an auricle narrower on the outer lip and very narrow on the parietal wall, which is adnate to the preceding turn; inner peristome moderately exserted and reflected, appressed to the outer on the outer lip and parietal wall. Operculum?

The type (U.S.N.M. No. 369105) looks semifossil. It was collected by Gerrit S. Miller, Jr., on the Boca del Infierno, Dominican Republic. It has 5 whorls remaining and measures: Height, 21.0 mm.; greater diameter, 11.7 mm.; lesser diameter, 9.1 mm.

INCERTIPOMA NESIOTES, new species

PLATE 30, FIGURE 5

Shell elongate-conic, pale yellow, with interrupted spiral bands of brown, of which three are present between the summit and the periphery and two much broader on the base. These bands ray the outer peristome. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, appressed at the summit, and marked by exceedingly fine, very regular, almost hairlike, retractively curved axial riblets, of which 447 are present on the last turn in the type. The spiral sculpture consists of slender hairlike threads a little stronger than the axial riblets, of which 31 are present between the summit and periphery on the last turn. The combination of the axial riblets and spiral threads gives to the surface a silky lustre. Suture strongly constricted. Periphery inflated, strongly rounded. Base short, strongly rounded, openly umbilicated, and marked by the continuation of the axial riblets, which extend over the umbilical wall, and by 17 spiral threads. The umbilical wall seems also to have indications of spiral threads. Aperture oval; peristome double, the outer enormously expanded and backward reflected, broadest on the inner lip and adnate on the parietal wall; the inner peristome is slightly exserted and appressed to the outer. Operculum unknown.

The type (U.S.N.M. No. 504148) was collected by Gerrit S. Miller, Jr., on the upper Orange Key on the south side of Samaná Bay, Dominican Republic. It has 5.4 whorls remaining and measures: Height, 16.8 mm.; greater diameter, 9.5 mm.; lesser diameter, 6.7 mm.

U.S.N.M. No. 369151 contains 7 topotypes, while U.S.N.M. No. 369139 contains 2 specimens also collected by Mr. Miller on the lower Orange Key.

U.S.N.M. No. 425515 contains a specimen collected by H. W. Krieger on San Lorenzo Bay.

These localities are closely approximated.

This species, while closely related to *Incertipoma sanjuanense,* which comes from San Juan on the North coast of San Juan Peninsula, can easily be differentiated from it by its much slenderer and smaller size.

INCERTIPOMA SANJUANENSE, new species

PLATE 30, FIGURE 1

Shell elongate-conic, flesh-colored, with a brownish tinge. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, appressed at the summit, and marked by exceedingly fine, hairlike axial riblets, of which 462 are present on the last turn in the type. The spiral sculpture consists of threads a little stronger than the axial ribs. Of these, 32 are present between the summit and the periphery in the type. Suture strongly constricted. Base well rounded, openly umbilicated, and marked by the continuation of the axial riblets, which extend over the umbilical wall, and by 19 spiral threads equaling those on the spire. On the umbilical wall there are other feeble spiral threads a little wider than those on the base. Aperture oval; peristome double, the outer broadly flaringly expanded; the inner moderately exserted and appressed to the outer. Operculum unknown.

The type (U.S.N.M. No. 425526) was obtained by H. W. Krieger at San Juan on the north coast of the Samaná Peninsula, Dominican Republic. It has 5.5 whorls remaining and measures: Height, 19.5 mm.; greater diameter, 10.4 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 425525 contains a topotype.

This species is distinguished from *Incertipoma nesiotes* by its larger and stouter form.

INCERTIPOMA DOMINICENSE (Pfeiffer)

PLATE 30, FIGURE 7

1850. *Cyclostoma dominicense* PFEIFFER, Zeitschr. Malak., vol. 7, p. 79.
1854. *Cyclostoma dominicense* PFEIFFER, Martini-Chemnitz Conchylien Cabinet, vol. 1, sect. 19, pp. 282-283, pl. 38, figs. 9, 10.
1891. *Ctenopoma dominicense* CROSSE, Journ. Conchyl., vol. 39, p. 169.

Shell perforate, elongate, truncated moderately, thick, rendered reticulated by raised axial and spiral threads, slightly shining, pale yellowish brown. Whorls rather high, very slightly narrower at the summit. Suture regularly denticulated. Whorls remaining 4, moderately rounded, the last slightly solute, keeled at the posterior angle. Aperture parallel with the axis, obliquely angulatedly oval. Peristome double, the inner slightly exserted, the outer somewhat expanded, and broader at the anterior end and at the posterior angle. Length 10 mm.; diameter 4.8 mm.

Operculum made up of shelly substance, with 4 whorls, whose edges stand up freely. Habitat: Collected by Sallé on the Island of Haiti.

I have seen nothing corresponding to the above description and figure from Haiti, so copy them from Pfeiffer. The description of the operculum would indicate an *Adamsiella,* but no Adamsiellas are known to me from Haiti. It is for this reason that I am placing the species in *Incertipoma.*

INCERTIPOMA HABICHII MINOR (Weinland)

1880. *Cyclostoma habichii minor* WEINLAND, Jahrb. deutschen malak. Ges., vol. 7, pp. 343–344.

Weinland refers to this, a specimen sent to him by Thomas Bland, collected by Newcomb at "Santo Domingo." (The specimen, he says, is in Bland's collection.) He also refers to it specimens collected on Gonave Island by Brown. This is evidently a mix-up due to the fact that Bland's unique specimen had been returned two years before he saw Brown's specimens. His identification, therefore, rested upon the sentence, "suture less profound, peristome nearly flat solute; last whorl not adnate." A description, he says, he prepared in 1862 based on Bland's specimen.

I am unable to tie this up with anything before me from the Dominican Republic.

THE ANNULARIIDAE OF THE BAHAMAS

The Bahamas constitute an archipelago of islands forming an arc with a southeast-northwest trend. The southeastern limit, Navidad Bank, lies about 30 miles off northeastern Dominican Republic. Its westernmost confines embrace the Cay Sal Bank, which lies about 25 miles north and a little west of the center of the north coast of Cuba. On the west the broad and deep Gulf Stream separates them from Florida. The northern limit of the Bank falls in latitude 27° 25′ N., or about opposite Indian River Inlet, Fla. On the east the Atlantic Ocean sets a limit to the group. The Bahamas are separated from Hispaniola and Cuba by the profound Bahama Channel.

We are told that this immense territory embraces a dry land area of some 4,404 square miles, consisting of 29 inhabited islands, 661 cays, and 2,387 rocks. From an ecologic standpoint there is much uniformity both in substrate environment and in climate.

The northern part of the archipelago consists of a number of shallow banks from which the comparatively low island and cays project. The northernmost of these is the little Bahama Bank, upon which Bahama Island, Little Abaco, and Great Abaco are situated. This part is separated from the region to the south by Northwest Providence Channel and the Tongue of the Ocean ranging from 250 to 2,250 fathoms in depth.

To the south of this lies the Great Bahama Bank, which has a shallow sea of a few fathoms depth, extending for more than 50 miles westward from the Berry Islands chain and Andros Island. On the northwestern border of this flat Bimini and Gun Cay harbor land mollusks.

Andros Island, about 95 miles long, forms the western limit of the Tongue of the Ocean, a profound cul-de-sac erosion channel that finds its exit in the northeast Providence Channel. The region south of Andros and the Tongue of the Ocean is a continuation of the shallow sea, which bends northward on the east of the Tongue of the Ocean and bears, in addition to a few cays on the western margin, a chain of cays on its eastern border that extend from South Point, Long Cay, northwestward for a distance of about 200 miles to New Providence Island and beyond this to northeastern Eleuthera, then southeast to Cat Island where it forms the Atlantic barrier, a chain of islands about 125 miles long. This chain is separated from the Long Key–New Providence axis by the deep Exuma Sound, which in places is more than 1,000 fathoms in depth.

With very little shift in ocean levels, much less than took place through the abstraction of water to form the ice cape during the glacial period, all this area would emerge from its watery covering and enable land animals to move over the entire area dryfooted. The affinity of our mollusks bespeaks such a state of affairs.

There is still another chain of cays belonging to the Great Bahama Bank series, the Ragged Island arc, which extends from the middle of the west side of Long Island to Cay Santo Domingo on Columbus Bank, a distance of more than 130 miles. It drops off into profound water at its outer limit.

To the south, beginning with San Salvador and extending through Rum, Crooked, Fortune, Acklin, Inagua, Caicos, and Turks Islands, and also Cay Sal Bank, we have what one may describe as truncated island cones rising from abyssmal depth upon the rim of which there have been deposited, while submerged, the skeletal remains of marine organisms associated to form coral reefs. Some of these reefs have emerged to considerable height. Cat island is listed by the Coast Pilot as having an elevation of 400 feet. These groups of cays form atolls, i.e., a rim of cays enclosing a shallow lagoon. The largest and most perfect of these is Caicos, whose greatest diameter is more than 70 miles. Crooked Island, Aklin Island, Fortune Island, and the Fish Cays form the next largest atoll. The Cay Sal complex and Great Inagua show the same structure. It is not surprising that one should find a close relationship in the faunal elements inhabiting these rings of islands.

Throughout the entire range there is little land that would permit the use of a plow. Most of the land is strewn with rocks, in whose chinks most of the planting for domestic use is accomplished. This means frequent shifting of fields and the destruction of the plant covering to furnish new fertile fields, a process disastrous to molluscan life.

The native vegetation is largely a West Indian drift or wind-borne element, and I believe that most of the molluscan fauna was similarly derived in the long ago.

With the exception of *Cerion* and *Hemitrochus*, most of which climb trees and shrubs, the land mollusks of the Bahamas are ground-dwellers, seeking the protective cool shelter of rock crevices. Their transportation from island to island might have been accomplished by individuals that had sought refuge in hollow fallen trees, and these might have been carried to sea by hurricanes and their accompanying floods and swept thereby to a possible new haven on another island. Cerions, I have found, can stand complete submergence for four and one-half days in salt water and survive. Young shells attached to dead leaves may have likewise been picked up by hurricanes and carried from island to island.

The material studied includes that which has come to the National Museum through the years from various sources. This, as well as the collectors, are mentioned under each species with the Museum catalog numbers. A large part was obtained by the author while a member of expeditions of the Tortugas (Fla.) Marine Biological Laboratory of the Carnegie Institution of Washington, which enabled him to explore Andros, New Providence, and the adjacent islands, Gun Cay, and San Salvador. However, the greatest amount of material was obtained during the investigation of the molluscan fauna of the islands of the Great Bahama Banks and the region to the south to Great Inagua in 1931, while the author was working under a grant of the Walter Rathbone Bacon Traveling Scholarship of the Smithsonian Institution.

During this cruise we collected on every island of the Cay Sal Atoll and on every island forming the chain of cays ranging from Flamingo Cay southward to Great Ragged Island. We next visited the atoll formed by Castle Island, Aklin Island, Crooked Island, and the Fish Cays, making many stations on the larger islands. Next the upper Plana Island was examined, but we were unable to land on the coral-bound southern Plana Island on account of heavy weather, which made the reef-bound cay inaccessible. Our next stop was on Mariguana Island, which was thoroughly explored, as was also Booby Cay to the south of it. The Caicos Atoll was next visited, and the ring of islands bounding it were examined one by one, as well as those in the interior of the lagoon. Next the cays of the Turks Island group were subjected to an overhauling. Then Little and Great Inagua yielded a host of molluscan treasures from many stations.

Family ANNULARIIDAE Henderson and Bartsch

1920. Annulariidae Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, pp. 54–55.

This family includes all the New World "cyclostomoid" mollusks placed under the family name of Cyclostomatidae, Ericiidae, or Pomatiasidae.

The chief distinguishing character that separates this group from all other operculate pulmonates is found in the radula, which possesses a unicuspid rachidian tooth, a single unicuspid lateral tooth, and two marginals—an inner one resembling in form the lateral tooth, but multicuspid, and an outer one, long and curved like a bow and pectinated both upon its recurved edge and upon its main portion but not thereby separated by the pectinations into a group of individual teeth. In a very few exceptions a mere indication of an additional minute denticle is apparent on the rachidian and lateral tooth. There is no jaw. The sole of the foot is longitudinally divided by a sulcus, which separates it into two muscular masses functioning independently from each other, thus giving to the animal a method of progression by alternate waves of muscular contraction, first on one side and then on the other. The foot is relatively short. A bifid muzzle of varying length is always present. The tentacles are long, slender, and fibrillar or slightly swollen at the ends. The eyes are placed at the base of the tentacles on the outer side and are often raised above the surface of the head by a fleshy protuberance.

The operculum shows a wide degree of variation through the various divisions of the family but follows, nevertheless, distinct lines of progression from a simple type to a very complicated structure, the steps from one extreme to the other being easily traceable. All the opercula possess a basal chondroid plate upon which calcareous ribs and lamellae are placed, the modifications of which are used in subdividing the family into a series of subfamilies and genera, as will be set forth below. Breathing devices, slits, punctures, and siphons may be present or absent.

The shell varies in shape from depressed-helicoid to elongate-conic. The sculpture varies from smooth to axially ribbed and spirally lirate, the intensity of these sculptural elements varying from obsolete to lamellose.

Type genus: *Annularia* Schumacher.

The Annulariidae differ from the Pomatiasidae, an Old World group, in the radula. The Pomatiasidae possess multicuspid rachidian, lateral, and inner marginal teeth. The outer marginal is pectinated, but the pectinations are confined to the reflected portion of the tooth. In the Annulariidae, on the other hand, the rachidian and lateral teeth are unicuspid, with a few exceptions where a small lateral denticle is present, the inner marginal is multicuspid, and the outer marginal is pectinate, but the pectinations extend beyond the reflected portion, involving the main blade.

The geographic range of the Annulariidae extends from the Bahamas and lower Florida on the north, throughout the Greater and Lesser Antilles and on the mainland from Mexico, to Bolivia. By far the greatest development is centered in the Great Antilles.

The relationship of the Bahaman Annulariidae to Cuba and Haiti may be expressed as follows:

Levipoma	Bahama
Chondrops	Bahama
Chondropomorus	Bahama, Cuba, Haiti
Chondropomisca	Bahama, Cuba
Chondropoma	Bahama, Cuba, Haiti
Opisthosiphona	Bahama, Cuba, Isle of Pines
Opisthosiphon	Bahama, Cuba
Leptopisthosiphon	Bahama
Colonina	Bahama, Haiti
Colonella	Bahama

KEY TO THE SUBFAMILIES FOUND IN THE BAHAMAS

Operculum a simple chondroid plate .... Chondropominae

Operculum not a simple chondroid plate.

  Operculum with riblike reenforcements .... Rhytidopominae

  Operculum bearing a calicified spiral lamella .... Annulariinae

Subfamily CHONDROPOMINAE Henderson and Bartsch

1920. Chondropominae HENDERSON and BARTSCH, Prod. U. S. Nat. Mus., vol. 58, p. 59.

Annulariid mollusks whose shell ranges in form from turbinate to elongate-conic. The axial sculpture may consist of strong ribs or range from these to slender, almost lamellar riblets, or it may be reduced to incremental lines. There is also a wide range of strength in the development of the spiral sculpture, which may be confined to the umbilicus or may cover the entire shell. Breathing devices are present in some groups and absent in others. The chief character of the subfamily, however, is found in the operculum, which consists of a thin, simple chondroid basal plate of several whorls, the outer edge of which may be faintly upturned to form a very fragile, low, slender lamella, suggesting the starting point of the subfamily Adamsiellinae. This is, however, usually soon brushed away, leaving the operculum as a plain plate. The operculum has a deposit of fine calcareous granules, which may be very slight or fairly strong, depending upon the species in question.

Type genus: *Chondropoma* Pfeiffer.

Genus CHONDROPOMA Pfeiffer

1847. *Chondropoma* Pfeiffer, Zeitschr. Malak., vol. 6, p. 109.

Shell ranging in form from turbinate to elongate-conic; the sculpture in varying intensity may consist of axial ribs only or of axial ribs and finer axial threads or of axial ribs and spiral threads. All, even those without spiral sculpture on spire and base, have spiral threads on the umbilical wall. No special breathing device is developed in the members of this genus. The operculum is simple; that is, it consists of a chondroid plate made up of a varying number of whorls, the outer thin edges of which are sometimes faintly upturned to form a suggestion of an obsolete lamella. The outer surface of the operculum has a deposit of calcareous granules, which is usually very slight but in some species rather pronounced. In no instance is this entirely absent. The position of the opercular nucleus, whether excentric or subcentral, depends upon the shape of the aperture.

Type species: *Cyclostoma sagra* Orbigny = *Chondropoma (Chondropoma) pictum sagra* (Orbigny). Selected by Petit in 1850.

KEY TO THE BAHAMAN SUBGENERA OF CHONDROPOMA

Axial and spiral sculpture absent .... **Levipoma**
Axial and spiral sculpture not absent.
  Summit of whorls tufted.
    Truncated shell pupoid .... **Chondrops**
    Truncated shell ovate .... **Chondropomorus**
  Summit of whorls not tufted.
    Junction of axial and spiral sculpture forming short cusps .... **Chondropomisca**
    Junction of axial and spiral sculpture not forming short cusps .... **Chondropoma**

Levipoma, new subgenus

Shell elongate-conic with the spiral sculpture absent and the axial sculpture also absent or reduced to mere denticulations at the summit of the whorls. Operculum typically chondropomoid, with the merest film of granular calcareous deposit.

Type species: *Chondropoma (Levipoma) inaguativum*, new species.

KEY TO THE SPECIES OF SUBGENUS LEVIPOMA

Suture denticulate	inaguativum
Suture not denticulate	inaguellum

CHONDROPOMA (LEVIPOMA) INAGUATIVUM, new species

Shell elongate-conic, pale horn-colored, the postnuclear turns marked with elongate spots of brown, whose long axis is spiral. These spots are also disposed in axial series. Nuclear whorls 2, well rounded, marked only by incremental lines. Postnuclear whorls well rounded, narrowly shouldered at the summit, and finely closely crenulated at the extreme summit. The axial sculpture of the spire is reduced to mere incremental lines, and no spiral sculpture is present. Periphery strongly rounded; base strongly rounded, narrowly openly umbilicated, marked only by incremental lines even in the umbilicus. Last whorl solute for about one-fifth of a turn, carinated on the outside at the posterior angle of the aperture. Aperture obliquely oval, simple, thickened at the edge of the peristome. Operculum typically chondropomoid.

This species appears confined to Inagua Island, where it breaks up into two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (LEVIPOMA) INAGUATIVUM

Denticulation at summit strongly developed and closely spaced	inaguativum
Denticulation at summit feebly developed and distantly spaced	petersi

CHONDROPOMA (LEVIPOMA) INAGUATIVUM INAGUATIVUM, new subspecies

Plate 32, Figure 6

This race has the denticles at the summit strongly developed and closely spaced. I found it in a number of places in the interior of the island.

The type (U.S.N.M. No. 474152) was collected by Bartsch on the flats west of Salt Pond Hill, Great Inagua. It is a complete specimen having almost 7 whorls and measuring: Length, 13.0 mm.; greater diameter, 5.9 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 391703 contains 55 topotypes from the same source.

U.S.N.M. No. 390687 contains 9 specimens from the flat south of Salt Pond Hill, Great Inagua, collected by Bartsch.

U.S.N.M. No. 390253 contains 33 specimens collected by Bartsch at Salt Pond Hill, Great Inagua.

U.S.N.M. No. 390336 contains 126 specimens collected by Bartsch from the lake side at Maroon Hill, Great Inagua.

CHONDROPOMA (LEVIPOMA) INAGUATIVUM PETERSI, new subspecies

PLATE 32, FIGURE 4

Shell like typical *Chondropoma (Levipoma) inaguativum inaguativum* but having the summit of the whorls almost appressed and the denticulations much less strongly developed and more distantly spaced.

The type (U.S.N.M. No. 474153) was collected by Bartsch at North Point of Ocean Bight, Great Inagua Island. It has 3.4 whorls remaining and measures: Length, 11.5 mm.; greater diameter, 6.0 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 390285 contains 13 topotypes from the same source.

U.S.N.M. No. 392164 contains 7 specimens collected by Bartsch on the west coast south of North East Point, east of the salt lagoon at a deserted house.

U.S.N.M. No. 391071 contains 1 specimen collected by Bartsch at North East Point, Great Inagua.

U.S.N.M. No. 392171 contains 3 specimens collected by Bartsch at the embayment of Ocean Bight, Great Inagua.

U.S.N.M. No. 393354 contains 2 specimens collected by Bartsch halfway between Palmetto and Carmichael Points, Great Inagua.

U.S.N.M. No. 390311 contains 1 specimen collected by Bartsch on the east side of North West Point, Great Inagua.

CHONDROPOMA (LEVIPOMA) INAGUELLUM, new species

PLATE 32, FIGURE 1

Shell similar in outline, absence of axial and spiral sculpture, color pattern, and operculum to *Chondropoma (Levipoma) inaguativum* but with the summits of the whorls not shouldered but almost appressed. The suture, therefore, is not channeled. There is also a complete absence of crenulations at the summit of the whorls.

The type (U.S.N.M. No. 474154) comes from Northwest Point, Little Inagua, collected by Bartsch. It has 4.3 whorls remaining and measures: Length, 12.8 mm.; greater diameter, 6.5 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 390948 contains 87 topotypes from the same source.

CHONDROPS, new subgenus

Shell with the axial ribs gathered into tufts at the summit as in *Chondropomorus*. The mollusk decollates the greater part of the spire leaving only four to four and one-half whorls remaining, which form a subcylindric shell. The decollated part forms a narrow elongate-conic spire. Operculum covered by a very thick callus.

The group, as far as shape and sculpture of the early whorls are concerned, recalls *Turripoma* Torre and Bartsch, with its unique species

T. bermudezi Torre and Bartsch from western Cuba, where it lives in the axils of palm leaves. *Chondrops* is a ground dweller confined to the southeastern Bahamas.

Type species: *Chondropoma (Chondrops) biforme* Pfeiffer.

KEY TO THE SPECIES OF THE SUBGENUS CHONDROPS

- Axial ribs lamellar.. cometense
- Axial ribs not lamellar.
  - Spiral sculpture forming strong keels.
    - Spiral keels on last whorl 3.......................... inaguicolum
    - Spiral keels on last whorl more than 3.................... baconi
  - Spiral sculpture not forming strong keels.
    - Spiral sculpture forming strong rounded cords.............. biforme
    - Spiral sculpture feeble, not forming strong rounded cords.
      - Axial ribs very fine and closely spaced................ planaense
      - Axial ribs almost obsolete............................. rawsoni

CHONDROPOMA (CHONDROPS) COMETENSE, new species

Plate 33, Figure 1

Decollated shell pupoid, subcylindric, of pale brown ground color, with axial streaks a little darker and with the ribs, particularly on the later whorls, much paler. Early whorls decollated in all our specimens; the remaining turns are moderately rounded and marked by strong spiral cords, of which four occur upon all the whorls between the summit and the periphery, with an intercalated cord between the second and third on the last two whorls in the type. The axial sculpture consists of narrow, slender, lamellar axial ribs, which are a little more distantly spaced on the early turns than on the last and which render the spiral cords scalloped and almost nodulose at their intersection. These ribs, of which 84 occur upon the last turn, extend prominently to the summit, where at irregular intervals several of them become fused to form a decided cusp. Suture moderately constricted. Periphery well rounded. Base moderately long, well rounded, and narrowly umbilicated, marked by five spiral cords equaling those of the spire and by the continuation of the axial ribs, which also extend into the umbilicus, where there is an additional slender spiral cord. The last whorl is solute for about one-fifth of a turn. Aperture broadly oval, slightly auriculated at the posterior angle. Peristome double; the outer moderately broadly expanded and reflected; the inner adnate to the outer, projecting only a trifle. Operculum typically chondropsid.

The type (U.S.N.M. No. 469143) was collected by Bartsch at Stubb Guano Cave, Cape Comete, East Caicos. It has 4.3 whorls and measures: Length, 11.3 mm.; greater diameter, 5.7 mm.; lesser diameter, 4.5 mm.

U.S.N.M. No. 391524 contains 73 topotypes from the same source.

This species is differentiated from the others belonging to *Chondrops* by its lamellose axial ribs.

CHONDROPOMA (CHONDROPS) INAGUICOLUM, new species

PLATE 33, FIGURE 2

Truncated shell pupoid; if complete, elongate-conic. The ground color varies considerably, but in the main it is flesh-colored, with a broad supraperipheral spiral band of brown which usually takes in the space between the peripheral keel and the one posterior to it, as well as the space anterior to the peripheral keel. Aperture flesh-color. Nuclear whorls almost 2, inflated, minutely granulose, forming a blunt apex. The first of the postnuclear turns is marked by exceedingly slender, retractive curved axial threads, which are very closely approximated. The succeeding whorls are characterized by similar axial sculpture, the threads being about as wide as the spaces that separate them, and large numbers of them become fused near the summit to form cusps. The spiral sculpture consists of three strong, almost lamellar, cords, which are equal in strength and spacing. The first is as far anterior to the summit as the third is posterior to the periphery. Base short, perforated, marked by four strong spiral cords and the continuation of the axial riblets, which extend into the umbilicus. Aperture oval. Peristome double, decidedly thickened, and reflected; the inner adnate to the outer. Operculum typically chondropsid.

The type (U.S.N.M. No. 469144) was collected by Bartsch on the west coast of Great Inagua south of Northeast Point and east of the salt lagoon. It has 4.3 whorls remaining and measures: Length, 10.6 mm.; greater diameter, 5.4 mm.; lesser diameter, 4.7 mm.

We also collected it at many other stations on Great Inagua and also at a number of stations on Little Inagua. The little Inagua material we are unable to differentiate from that of Great Inagua.

U.S.N.M. No. 392163 contains 96 topotypes from the same source.

U.S.N.M. No. 393353 contains 187 specimens collected by Bartsch halfway between Palmetto and Carmichael Points, Great Inagua.

U.S.N.M. No. 391069 contains 54 specimens collected by Bartsch at North East Point, Great Inagua.

U.S.N.M. No. 392173 contains 8 specimens collected by Bartsch on the embayment at the center of Ocean Bight, Great Inagua.

U.S.N.M. No. 390590 contains 7 specimens collected by Bartsch at Man O' War Bay about 1 mile north of Midi Point, Great Inagua.

U.S.N.M. No. 390933 contains 1314 specimens collected by Bartsch on Little Inagua.

CHONDROPOMA (CHONDROPS) BACONI, new species

Truncated shell cylindroconic, pupoid, varying in color from flesh-color to horn-color to brown, unicolor, axially streaked or spirally interruptedly or continuously banded. Nuclear whorls forming a conspicuous truncated mammillated apex of almost two whorls, which are inflated and finely granulose, followed by a turn or more which has fine, closely spaced, hairlike, retractively slanting axial threads. On the succeeding turns the spiral sculpture makes its appearance and rapidly assumes the dominant features of the sculpture. This consists of four or more strong spiral keels, which are of more or less equal size and spacing. The fine, closely approximated, hairlike axial riblets are best seen in the spaces between the keels, and they are gathered in very conspicuous tufts at the summit. Suture moderately constricted. Base short, well rounded, narrowly umbilicated, and marked by the continuation of the axial threads and four or five spiral cords equaling those on the spire. The last whorl is solute for about one-fifth of a turn. Aperture oval, slightly auriculate at the posterior angle. Peristome double. The outer moderately expanded and reflected; the inner adnate to the outer. Operculum typically chondropsid.

This species is found in the eastern Caicos group ranging from East Caicos through South Caicos through Big Iguana Cay to Grand Caicos. It breaks up into several subspecies which the key below will help to differentiate.

It differs from *C. (C.) inaguicolum* in having more spiral keels.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPS) BACONI

Tufts at summit of whorls very strong.	
Whorls slightly inflated	baconi
Whorls not inflated	rathbuni
Tufts at summit of whorls not strong	caicosense

CHONDROPOMA (CHONDROPS) BACONI BACONI, new subspecies

Plate 33, Figure 4

Of this race I collected a large series on the hillside at the west end of East Caicos on July 29, 1930.

It differs from *Chondropoma (Chondrops) baconi rathbuni* in having the whorls a little more inflated and in having the fine axial threads a little finer, in which respect it resembles *C. (C.) b. caicosense.*

The type (U.S.N.M. No. 469145) has a little more than 4 whorls remaining and measures: Length, 10.8 mm.; greater diameter, 5.4 mm.; lesser diameter, 4.9 mm.

U.S.N.M. No. 391549 contains 62 topotypes from the same source.

CHONDROPOMA (CHONDROPS) BACONI RATHBUNI, new subspecies

Plate 33, Figure 9

Of this shell I collected a large series on a hill facing the salt pond on the west side of South Caicos. It resembles *Chondropoma (Chondrops) baconi baconi* in the strength of the nodulation at the summit but has the axial threads a little stronger and the whorls less inflated.

The type (U.S.N.M. No. 469146), which comes from the above locality, has a little more than four whorls remaining and measures: Length, 11.5 mm.; greater diameter, 5.8 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 391463 contains 191 topotypes from the same source.

U.S.N.M. No. 391185 contains 38 specimens, indistinguishable from material from the type locality, which were collected on Big Iguana Cay, Comete, East Caicos, July 28, 1930, by Bartsch.

CHONDROPOMA (CHONDROPS) BACONI CAICOSENSE, new subspecies

Plate 33, Figure 3

Of this race I obtained thousands of specimens on the rocky hill on the south side of the salt lagoon on Lightborn Creek, Grand Caicos, July 26, 1930.

This differs from the other two subspecies in having the nodulations at the summit very feebly developed; in the axial threading it resembles *Chondropoma (Chondrops) baconi baconi.*

The type (U.S.N.M. No. 469147) has 4.3 whorls remaining and measures: Length, 8.0 mm.; greater diameter, 5.0 mm.; lesser diameter, 4.3 mm.

U.S.N.M. No. 391129 contains 4082 topotypes from the same source.

U.S.N.M. No. 391359 contains a dead specimen collected by Bartsch on the east side of Little Halfway Creek, Grand Caicos.

CHONDROPOMA (CHONDROPS) BIFORME Pfeiffer

1858. *Chondropoma biforme* Pfeiffer, Malakozool. Blätter, vol. 5, pp. 143, 144.

The truncated shell varies from pupoid to subcylindric; the color ranges from white through flesh-color to horn-color to pale brown to dark brown; it may be unicolor, interruptedly banded, or marked with a broad peripheral zone of chestnut-brown; aperture always pale. Nuclear whorls almost 2, inflated, strongly rounded, minutely granulose, forming a mammillated, almost truncated apex. The whorl immediately succeeding the nuclear turn is marked by closely spaced, hairlike, slightly retractively curved axial riblets, which in turn are succeeded by the postnuclear sculpture. This varies materially in the different races. In all the races the axial sculpture forms slender, slightly retractively curved riblets, which are gathered at irregular intervals into tufts at the summit. The spiral sculpture is fairly constant and consists of strong rounded cords, not keels, as in some of the other species of *Chondrops.* The junction of the axial and spiral elements forms feeble nodules having their long axis parallel with the axial sculpture. Suture moderately constricted. Periphery well rounded. The base is moderately long, well rounded, and marked like the spire, narrowly openly umbilicated. Aperture broadly oval. Peristome double, forming a slight auricle at the posterior angle. The inner adnate to the outer. Operculum typically chondropsid.

This species is found in the various keys of the Turks Island group and extends over the eastern part of the Caicos group into Little Inagua and Booby Cay of the Mariguana group. It breaks up into a number of recognizable races, which are here described. The accompanying key will help to differentiate them:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPS) BIFORME

Spiral threads on spire crowded.
  Spaces between axial ribs and spiral threads thimble-pitted.
    Pits round .... sulaense
    Pits elongate .... biforme
Spiral threads on spire not crowded.
  Shell heavy and robust.
    Axial sculpture rather fine .... cottonense
    Axial sculpture coarser .... arenarium
  Shell not heavy or robust.
    Whorls rather high between summit and suture.
      Axial sculpture very fine .... bellense
      Axial sculpture coarser .... gambelense
    Whorls not high between summit and suture.
      Axial sculpture very fine .... salarium
      Axial sculpture coarser .... neyi

CHONDROPOMA (CHONDROPS) BIFORME SULAENSE, new subspecies

PLATE 33, FIGURE 11

Of this race I collected a large series of specimens on Booby Cay at the east end of Mariguana Island. It differs from the other races in having the whorls inflated and the axial riblets rather strong. The combination of the axial riblets with the spiral threads produces a thimble-pitted pattern, but here the pits are nearly rounded, the long axis coinciding with the axial sculpture.

The type (U.S.N.M. No. 390450) has 4.5 whorls remaining and measures: Length, 10.6 mm.; greater diameter, 5.0 mm.; lesser diameter, 4.3 mm.

U.S.N.M. No. 391637 contains 329 topotypes from the same source.

In the sculptural pattern it most nearly resembles typical *C. (C.) biforme biforme,* but differs in having much less inflated whorls.

CHONDROPOMA (CHONDROPS) BIFORME BIFORME Pfeiffer

PLATE 33, FIGURE 8

1858. *Chondropoma biforme* PFEIFFER, Malakozool. Blätter, vol. 5, p. 143.

In this race, which comes from Grand Turk Island, Bahama, the whorls are inflated, the spiral cords moderately strong, rather closely crowded and crossed by numerous slender threads, the spaces enclosed between the axial and spiral sculpture forming elongate pits.

The specimen described and figured (U.S.N.M. No. 391927), one of 129 collected by Bartsch, has 4.3 whorls remaining and measures: Length, 11.7 mm.; greater diameter, 5.7 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 362840 contains 8 specimens intercepted in Philadelphia by the Federal Horticultural Board in soil about cactus plants coming from Turk Island.

In the strength of the axial riblets it resembles most closely *Chondropoma (Chondrops) biforme sulaense.*

CHONDROPOMA (CHONDROPS) BIFORME COTTONENSE, new subspecies

PLATE 33, FIGURE 14

Of this race I collected a large series of dead specimens on Cotton Island between Grand Turk and Cay Sal.

In this race we have a robust shell like that of *Chondropoma (Chondrops) biforme biforme,* but the spiral threads are less crowded than in that subspecies and the axial threads are slightly inclined to be sublamellar. The outer peristome is also more expanded.

The type (U.S.N.M. No. 391506) has 4.3 whorls remaining and measures: Length, 10.9 mm.; greater diameter, 5.7 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 130830 contains 49 topotypes from the same source.

CHONDROPOMA (CHONDROPS) BIFORME ARENARIUM, new subspecies

PLATE 33, FIGURE 13

This race, which is the largest and most robust of the group, I collected on the south end of Sand Cay, Turk Island Group, August 2, 1930. It has the whorls quite strongly inflated; suture deeply impressed, and the axial sculpture is rather coarse. It resembles most closely *Chondropoma (Chondrops) biforme cottonense,* but is more robust and coarser in every way than that subspecies.

The type (U.S.N.M. No. 391864) has 4.3 whorls remaining and measures: Length, 11.8 mm.; greater diameter, 6.0 mm.; lesser diameter, 5.3 mm.

U.S.N.M. No. 392367 contains 3 topotypes from the same source.

CHONDROPOMA (CHONDROPS) BIFORME BELLENSE, new subspecies

PLATE 33, FIGURE 15

This race I collected in numbers on Bell Cay, off Cape Comete, East Caicos, July 27, 1930. It is a moderately thin elegant shell, with very fine, closely spaced axial riblets and five spiral threads. It is most nearly related to *Chondropoma (Chondrops) biforme gambelense,* from which it is easily distinguished by its much finer axial sculpture.

The type (U.S.N.M. No. 391559) has 4.8 whorls remaining, and measures: Length, 12.5 mm.; greater diameter, 5.8 mm.; lesser diameter, 4.9 mm.

U.S.N.M. No. 391297 contains 92 topotypes from the same source.

CHONDROPOMA (CHONDROPS) BIFORME GAMBELENSE, new subspecies

PLATE 33, FIGURE 12

This race I collected in moderate numbers on Gambel's Cay, eastern Grand Caicos, July 26, 1930. In shape it closely resembles *Chondropoma (Chondrops) biforme bellense,* from which it is, however, easily distinguished by its much heavier axial sculpture, which is almost sublamellar.

The type (U.S.N.M. No. 536677) has 4.5 whorls remaining, and measures: Length, 12.0 mm.; greater diameter, 6.1 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 391613 contains 11 topotypes from the same source.

CHONDROPOMA (CHONDROPS) BIFORME SALARIUM, new subspecies

PLATE 33, FIGURE 7

Of this race I collected a large series at the northeastern end of the salt pans on Salt Cay, south of Grand Turk Island, August 1, 1930, as well as at a number of additional stations on the same island. It is a small race with slightly rounded whorls, feeble spiral sculpture, and closely spaced, fine axial threads and crowded axial riblets on the base. It recalls *Chondropoma (Chondrops) biforme neyi* from Inagua Island but differs from it in its much finer sculpture.

The type (U.S.N.M. No. 536676) has 4.1 whorls remaining and measures: Length, 9.0 mm.; greater diameter, 4.8 mm.; lesser diameter, 4.1 mm.

U.S.N.M. No. 390571 contains 465 topotypes from the same source.

U.S.N.M. No. 391860 contains 15 specimens collected by Bartsch on Salt Cay along the shore of the northeastern end of the salt pans, Salt Cay.

U.S.N.M. No. 390175 contains 5 specimens collected by Bartsch near the lighthouse at the northwestern end of Salt Cay.

U.S.N.M. No. 391854 contains 23 specimens collected by Bartsch on the south end of Salt Cay.

CHONDROPOMA (CHONDROPS) BIFORME NEYI, new subspecies

PLATE 33, FIGURE 10

I collected this race in abundance in many places on Little Inagua Island. It is an exquisite shell with almost sublamellar axial riblets, which form slight scallops at the intersection with the spiral threads. It resembles most nearly *Chondropoma (Chondrops) biforme salarium*, but the sculpture is much heavier in every way.

The type (U.S.N.M. No. 536678) has 4.5 whorls remaining and measures: Length, 10.2 mm.; greater diameter, 5.0 mm.; lesser diameter 4.3 mm. It was collected along the bay south of North Point.

U.S.N.M. No. 390800 contains 207 topotypes from the same source.

U.S.N.M. No. 390347 contains 63 specimens collected by Bartsch between the west end and South Point, Little Inagua.

U.S.N.M. No. 392362 contains 5 specimens collected by Bartsch between the hill and the west shore at the south end of Little Inagua.

U.S.N.M. No. 392185 contains 19 specimens collected by Bartsch on the shore of the bay south of North Point, Little Inagua.

U.S.N.M. No. 390276 contains 9 specimens collected by Bartsch on the west side of Little Inagua north of the point.

CHONDROPOMA (CHONDROPS) PLANAENSE, new species

PLATE 33, FIGURE 5

The truncated shell is pupoid. The coloration varies from unicolor flesh-color to pale brown, frequently banded with interrupted spiral bands of dark brown or even spiral zones of brown. Aperture with a brownish flush within and a pale peristome. Nuclear whorls almost 2, inflated, forming a flattened mammillated apex. These whorls are followed by a short space on the succeeding turn, which is marked by closely spaced, retractively slanting, axial, hairlike threads, after which the normal postnuclear sculpture becomes apparent. The postnuclear whorls are moderately rounded, marked by rather strong, slightly retractively slanting, low, rounded, axial riblets, which are gathered into tufts at the summit. These tufts embrace a varying number of fused riblets. The spiral sculpture consists of low, rounded, feeble threads of about the same strength as the axial. Of these, 10 occur between the summit and the suture. They render the axial riblets feebly nodulose and the spaces enclosed between the axial riblets and spiral threads finely pitted. Suture moderately constricted; periphery well rounded. Base moderately long, narrowly umbilicated, marked by a continuation of the axial riblets and seven spiral threads. Within the umbilicus three additional feeble spiral threads are present, as well as the continuation of the axial riblets. Aperture ovate, slightly auriculate at the posterior angle. The last whorl is adnate to the preceding turn. Peristome double; the outer and inner almost coextensive and slightly reflected and adnate to each other.

The type (U.S.N.M. No. 391762) was collected by Bartsch on the east side of the western Plana Island. It has almost 4 whorls remaining and measures: Length, 9.5 mm.; greater diameter, 5.1 mm.; lesser diameter, 4.3 mm.

U.S.N.M. No. 390889 contains 241 topotypes from the same source.

This species suggests *Chondropoma (Chondrops) rawsoni* but can at once be differentiated from this by its better-developed spiral threads.

CHONDROPOMA (CHONDROPS) RAWSONI Pfeiffer

PLATE 33, FIGURE 6

1867. *Chondropoma rawsoni* PFEIFFER, Malak. Blätter, vol. 14, p. 166.
1905. *Rhytidopoma cuploca* DALL, Smithsonian Misc. Coll., vol. 47, p. 449, pl. 59, fig. 6.
1937. *Chondropoma russelli* CLENCH, Proc. New England Zool. Club, vol. 16, p. 67, pl. 3, fig. 3.

Truncated shell subcylindric, varying greatly in color in different individuals. This ranges from unicolor flesh-color through pale horn-color through pale brown. The shell, however, may be interruptedly spirally banded or marked with continuous broad chestnut-colored bands as in Clench's *Chondropoma russelli*. Nuclear whorls about 2, inflated, strongly rounded, finely granulose, forming a mammillated, almost truncated, apex. The basal portion of these nuclear whorls in some instances bears a brown zone, which is lost in the later turns. The early portion of the succeeding whorls shows indications of closely spaced, retractively slanting hairlines, which in turn give way to the postnuclear sculpture. The postnuclear whorls are moderately well rounded with the axial riblets, as a rule, almost obsolete, and the spiral threads poorly produced. In spite of its poor development of the axial riblets they form tufts at the summit. On the last whorl the sculpture usually becomes a little stronger and shows the pitting between the spiral elements and the axial riblets. Suture moderately constricted; periphery well rounded. The base is marked like the spire narrowly openly umbilicated. Aperture broadly oval. Peristome double, slightly auriculate at the posterior angle. Both the inner and outer are moderately broadly expanded and reflected and adnate to each other. The last whorl is adnate to the preceding turn. Operculum typically chondropsid.

The specimen described and figured (U.S.N.M. No. 536683), one of 6 from Inagua, has 4.4 whorls remaining and measures: Length, 7.5 mm.; greater diameter, 3.7 mm.; lesser diameter, 3.0 mm.

Another specimen (U.S.N.M. No. 355932), from the Prime Collection, has a little more than 4 whorls remaining and measures: Length, 9.5 mm.; greater diameter, 4.5 mm.; lesser diameter, 3.1 mm.

U.S.N.M. No. 536679 contains 1 specimen from the Bland Collection from Great Inagua.

U.S.N.M. No. 57606 contains 3 specimens (types of *Rhytidopoma euploca* Dall) from Great Inagua.

U.S.N.M. No. 536680 contains a paratype of *Chondropoma russelli* Clench from Great Inagua.

U.S.N.M. No. 391693 contains 40 specimens collected by Bartsch at North East Point, Great Inagua.

U.S.N.M. No. 392287 contains 1 specimen from the north side of Ocean Bight, Great Inagua.

U.S.N.M. No. 392156 contains 7 specimens from Jackline, Great Inagua, collected by Bartsch.

U.S.N.M. No. 392150 contains 70 specimens collected by Bartsch at lake side at Maroon Hill, Great Inagua.

U.S.N.M. No. 390280 contains 139 specimens collected by Bartsch on the north point of Ocean Bight, Great Inagua.

U.S.N.M. No. 392181 contains 175 specimens collected by Bartsch on the west side of lake about 1 mile from Maroon Hill, Great Inagua.

U.S.N.M. No. 390298 contains 5 specimens collected by Bartsch on the east side of North West Point, Great Inagua.

U.S.N.M. No. 394123 contains 7 specimens from Carmichael Point, Great Inagua.

U.S.N.M. No. 536681 contains 4 specimens from the Ford Collection from Great Inagua.

U.S.N.M. No. 536682 contains 2 specimens from the Smith Collection from Great Inagua.

We gathered this species in large numbers in various parts of Great Inagua, the type locality, both along the northern shore line and the interior. It shows considerable variation, but this occurs in each locality, so that there are no isolated races to be considered. Dall's *Rhytidopoma euploca* and Clench's *Chondropoma russelli* are merely variants of the main theme. It is not surprising that Dall and Clench, dealing probably with selected material, should have been misled as to the distinctness of these two.

The decidedly reduced sculpture will distinguish this from all the other species of *Chondrops*.

Subgenus CHONDROPOMORUS Henderson and Bartsch

1920. *Chondropomorus* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 61.

Shell ovate; marked by both axial and spiral threads, the axial threads being gathered into tufts at the summits of the whorls.

Type species: *Cyclostoma dentatum* Say = *Chondropoma (Chondropomorus) dentatum* (Say).

KEY TO THE BAHAMAN SPECIES OF CHONDROPOMORUS

Axial ribs very slender and closely spaced	erroneum
Axial ribs coarse	canescens

CHONDROPOMA (CHONDROPOMORUS) ERRONEUM, new species

PLATE 32, FIGURE 11

Decollated shell elongate-ovate, all but the last of the remaining postnuclear whorls chestnut-brown; the last horn-colored. The whorls are marked between the summit and periphery by three spiral rows of elongate brown spots, having their long axis parallel with the spiral sculpture. These spots are also arranged in axial series; an additional row of similar marks is present at a little distance below the periphery, and several feebly expressed ones occur near the umbilicus. On the dark early whorls these brown markings are rendered indistinct by the dark general color. The peristome is horn-colored, while the dark markings on the outside of the last whorl show on the inside of the aperture. The postnuclear whorls are moderately rounded and marked by sublamellar axial ribs, which become regularly more closely spaced with the increasing whorls. Of these 257 are present on the last whorl in the type. These riblets at irregular intervals become fused at the summit where they form the nodules that characterize the subgenus. In addition to the axial ribs, the whorls are marked by low, rounded spiral threads, of which 11 are present between the summit and the periphery. These threads render the axial ribs slightly wavy and slightly nodulose at their junctions. Suture rather deeply channeled. Periphery well rounded. Base moderately long, well rounded, and marked by the continuations of the axial ribs and eight spiral threads of about the same strength as those on the spire. The narrow open umbilicus shows the continuation of the axial ribs and three spiral threads. The last whorl is solute for about one-tenth of a turn and shows a decided carina at the posterior angle; peristome double on the inner lip and parietal wall where it is narrowly expanded. On the outer lip the two become fused. Operculum a simple paucispiral chondroid plate.

The type (U.S.N.M. No. 536738) has 3.3 whorls remaining and measures: Length, 14.1 mm.; greater diameter, 7.0 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 57314 contains 2 topotypes from the same source.

This species is easily differentiated from those farther south by its more flattened whorls and detailed sculpture.

The three shells upon which this species is based came from Rowell, through the R. E. C. Stearns Collection to the U.S. National Museum. The label accompanying them in Dr. Dall's handwriting says Great Inagua. They were labeled *Chondropoma bryanti* Pfeiffer and were so listed in the publications of Dall, Henderson, and Henderson and Bartsch. They are not *Ctenopoma bryanti* Pfeiffer, which is a *Colonina.* They belong to that part of *Chondropoma (Chondropomorus)* that embraces *C. antiguense* from Antigua, *C. ignaeum* from Anguilla, and C. *pupaeforme* from St. Martin. They are, therefore, a long distance from their relatives. A careful comparison with the species mentioned above proclaims their distinctness and strengthens the case against a possible wrong locality designation.

On the other hand, we failed to find the species in Inagua during our careful collecting in that island in 1930.

CHONDROPOMA (CHONDROPOMORUS) CANESCENS NASSAUENSE, new subspecies

Plate 32, Figure 9

Shell elongate-conic, of pinkish flesh-colored ground color, clouded with various markings and marblings of different shades of brown, the most conspicuous of which are oblique, more or less rectangular spots, which slant protractively from the summit, and a series of very large dark brown spots a little below the periphery. In addition to these, there are smaller spots arranged in both axial and spiral series on the spire and base. Aperture pale brown within, showing the brown color markings, the large subperipheral dots forming a continuous band on the inside, which extends over both the outer and inner lip. Early whorls decollated; the later somewhat inflated, well rounded, marked by subobsolete, somewhat retractively curved axial riblets, which are gathered together into rather broad, short tufts at the summit, the spaces between them being narrower than the tufts. The spiral sculpture consists of low, weakly developed, spiral threads, which scarcely render their junction with the axial riblets nodulose. The spaces enclosed between the ribs and spiral threads are squarish pits. Suture well constricted. Periphery slightly, obsoletely angulated. Base short, well rounded, narrowly umbilicated, marked by the continuations of the axial riblets and spiral threads, the latter becoming a little intensified toward the umbilicus and a little more distantly spaced, those within the umbilical wall a little lighter than those immediately outside it. Aperture oval; peristome double, the outer rather broadly expanded all around and reflected, forming a rather conspicuous auricle at the posterior angle, and scalloped on the columellar and basal wall; inner lip slightly expanded and projecting materially above the outer with a strong demarcation between the two all around. Operculum paucispiral, submarginal, the outer surface covered with a fine, thin, granular calcareous deposit.

The type (U.S.N.M. No. 355076) was collected by Barton Bean and J. H. Riley at Nassau, New Providence, Bahamas. It has a little over 5 whorls and measures: Length, 17.0 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.8 mm.

U.S.N.M. No. 173184 contains 3 topotypes from the same source.

U.S.N.M. No. 355077 contains 1 specimen from the Gill Collection.

U.S.N.M. No. 366199 contains 11 specimens collected by C. C. Allen at South Beach, Nassau.

U.S.N.M. No. 467099 contains 484 specimens collected by C. C. Allen at Nassau.

U.S.N.M. No. 180675 contains 8 specimens collected by Owen Bryant at Grantstown Road, Nassau, New Providence.

U.S.N.M. No. 466013 contains 1 specimen collected 3 miles north of the bluff in the interior of the island, Nassau, New Providence.

U.S.N.M. No. 466024 contains 62 specimens collected at Nassau, New Providence.

U.S.N.M. No. 269212 contains 5 specimens collected by Bartsch on the south shore of New Providence.

U.S.N.M. No. 467127 contains 6 specimens collected by C. C. Allen at Spanish Wells, Eleuthera.

U.S.N.M. No. 467154 contains 3 specimens collected by C. C. Allen on the sea cliffs near Corry Sound, New Providence.

Clench in the Bulletin of the Museum of Comparative Zoology, vol. 80, No. 14, p. 516, 1938, mentions the following localities on Cat Island for *Chondropoma canescens* Pfeiffer: "Arthurs Town; 1 mi. S. E.; 3 mi. N. W.; and 4 mi. E. of Arthurs Town; Orange Creek; ½ mi. and 2½ mi. N. E. of Orange Creek; Winding Bay; Bain Town; 3 mi. N. W. of Port Howe." These may represent this subspecies.

This offers a fine field for speculation to account for this interrupted distribution. If carried by human agency, it must have been sufficiently long ago to enable the New Providence forms to become subspecifically differentiated. This race has the whorls a little more rotund than the typical Cuban forms; it is also one of the obsoletely axially sculptured forms.

Subgenus CHONDROPOMISCA Torre and Bartsch

1938. *Chondropomisca* TORRE and BARTSCH, Proc. U. S. Nat. Mus., vol. 85, p. 375.

Small shells, varying from ovate to broadly ovate in outline, with the spiral threads a little stronger than the axial riblets, the junctions of the two forming sharply pointed cusps. The summit of the whorls is rendered finely denticulated by the axial riblets. Peristome double, the outer only moderately expanded.

Type species: *Cyclostoma (Chondropoma) rufopictum* 'Gundlach' Pfeiffer = *Chondropoma (Chondropomisca) rufopictum* ('Gundlach' Pfeiffer).

This subgenus was created by Torre and Bartsch for a group of east Cuban land shells characterized as above. The extension of the group into the Bahamas is interesting. Little Inagua and Providenciales of the Caicos Atoll lie in a northeasterly direction from eastern Cuba. No members of this subgenus have been reported from Haiti or the Dominican Republic.

KEY TO THE BAHAMAN SPECIES OF CHONDROPOMISCA

Axial ribs heavy and distantly spaced	providencialense
Axial ribs not heavy or distantly spaced	saccharinetense

CHONDROPOMA (CHONDROPOMISCA) PROVIDENCIALENSE, new species

PLATE 32, FIGURE 2

Shell pupoid in outline, white; nuclear whorls decollated, the remaining postnuclear whorls well rounded, and marked by almost vertical, very strong, rather broad axial ribs, which are rendered denticulate by the spiral threads. Of these ribs 18 occur upon the first and 22 upon the remaining turns. The spiral sculpture consists of rather feebly developed, broad, rounded, low threads, which are best visualized on the ribs by the denticulation they produce there. Of these, six occur between the summit and the suture. Suture strongly constricted, rendered decidedly sinuous by the axial ribs. Periphery inflated. Base short, well rounded, and marked by the continuation of the axial ribs, which extend into the moderately broadly open umbilicus, and by seven spiral cords of about the same strength as those on the spire. Within the umbilicus the spiral sculpture becomes enfeebled. The last whorl is solute for about one-sixth of a turn. Aperture broadly ovate; peristome simple within at the edge.

The type (U.S.N.M. No. 390179) I collected on the southeast point of Providenciales, Caicos Group, Bahamas. It has almost 4 whorls remaining and measures: Length, 9.8 mm.; greater diameter, 5.7 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 536739 contains a topotype from the same source.

CHONDROPOMA (CHONDROPOMISCA) SACCHARINETENSE, new species

PLATE 32, FIGURE 3

Shell of pupoid outline, pale straw-colored, marked with interrupted spiral bands of brown; the elements composing these also fall in axial series. Nuclear whorls about 2, inflated, strongly rounded, smooth. Postnuclear whorls rather strongly rounded and marked by slender, almost vertical axial riblets, which are rendered denticulate by the spiral threads. These riblets extend to the summit where they form rather sharp cusps. Of these, 24 are present on the first, about 30 upon the second, and 32 upon the last of the remaining turns. Suture moderately impressed. Periphery well rounded. Base short, strongly rounded, and marked by the continuation of the axial ribs and spiral cords, which produce the same type of sculpture on the riblets as on the spire. Last whorl solute for about one-sixth of a turn. Aperture very broadly ovate, almost subcircular, slightly expanded and reflected at the edge, where it is somewhat thickened.

The type (U.S.N.M. No. 536740) and a large series of specimens I collected on Sugar Loaf Cay southeast of Providenciales. The type has 3.6 whorls remaining and measures: Length, 8.3 mm.; greater diameter, 5.7 mm.; lesser diameter, 4.6 mm.

U.S.N.M. No. 391390 contains 56 topotypes from the same source.

This species varies considerably in size, some specimens being much larger than the type; others smaller. A single dead specimen and a fragment collected on the shores of the bay south of North Point on Little Inagua do not show characters to differentiate them from the species above described.

Subgenus CHONDROPOMA Pfeiffer

1847. *Chondropoma* PFEIFFER, Zeitschr. Malak., vol. 6, p. 109.

Shell ranging in form from ovate-conic to elongate-conic. The axial sculpture consists of ribs or riblets, which vary considerably in strength in the different species. The riblets are never gathered into tufts at the summit. The spiral sculpture is also quite variable, but regardless of its strength it is found upon all parts of the spire and base. The peristome may be simple or expanded. No breathing device is present. Operculum typically chondropomoid.

Type species: *Cyclostoma sagra* Orbigny = *Chondropoma (Chondropoma) pictum sagra* (Orbigny).

KEY TO THE BAHAMAN SPECIES OF THE SUBGENUS CHONDROPOMA

Spire decidedly granulose.
  Whorls strongly rounded.
    Last whorl solute.................................... **graniferum**
    Last whorl not solute............................ **mariguanicolum**
  Whorls not strongly rounded............................ **pannosum**

Spire not decidedly granulose.
Suture channeled.
Suture channeled on more turns than the last............ **necopium**
Suture not channeled on more turns than the last.
Last whorl adnate.................................... **glabratum**
Last whorl slightly solute........................... **hjalmarsoni**
Suture not channeled..................................... **planicolum**

Chondropoma (Chondropoma) inaguense (Weinland) is not included in this key.

CHONDROPOMA (CHONDROPOMA) GRANIFERUM, new species

Shell of medium size, when complete elongate-ovate, when truncated ovate; varying in color from white to pale yellow in ground color, unicolor or marked with interrupted spiral bands of brown, the elements of which are also usually arranged in axial series. Nuclear whorls about 2, forming a blunt apex, well rounded; the early ones finely granulose, the last portion showing the beginning of closely spaced, axial, hairlike threads, which increase in strength to develop eventually into axial postnuclear ribs. The postnuclear whorls are strongly rounded and marked by numerous rather closely spaced axial riblets, which vary in strength and spacing in the different races. In *C. (C.) graniferum graniferum* they become weakened on the last turn. These riblets form little nodules at the summit, which they strongly denticulate. The spiral sculpture consists of slender threads also varying somewhat in strength and number in the different races. The junction of these with the axial riblets forms conspicuous granules. Suture moderately constricted, channeled for about one-tenth of the last turn. Periphery inflated, strongly rounded. The base is moderately long, strongly rounded, openly umbilicated, the umbilicus being rather wide in all but *Chondropoma (Chondropoma) graniferum burnetense*. The last whorl is solute for some distance. The aperture is broadly ovate, auriculate at the posterior angle. Peristome double; the two coextensive on the outer and basal lip and only differentiated on the parietal wall, particularly so at the posterior angle. Operculum typically chondropomoid.

This species ranges through the keys of the northwestern end of the Caicos atoll. Its strongly rounded whorls with the conspicuous granular sculpture and the solute last whorl will differentiate it from the other species.

The following key will help to distinguish the races:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) GRANIFERUM

Umbilicus narrow.. **burnetense**
Umbilicus not narrow.
Posterior angle of aperture strongly auriculate.
Axial ribs distantly spaced.............................. **graniferum**
Axial ribs not distantly spaced.......................... **saxicolum**
Posterior angle of aperture not strongly auriculate......... **malcolmense**

CHONDROPOMA (CHONDROPOMA) GRANIFERUM BURNETENSE, new subspecies

Plate 32, Figure 10

This race, of which I collected quite a series on the west coast of West Caicos, is the largest of the known forms of *graniferum*. All our specimens were dead, hence white. The whorls were very inflated and the spiral threads numerous, there being 14 between summit and suture on the last whorl. The same type of sculpture continues over the periphery and base. In this race the umbilicus is quite narrow and the parietal wall of the aperture is almost adnate to the preceding turn, that is, the solute portion is the least extensive of any of the known races.

The type (U.S.N.M. No. 392363) has a little more than 4 whorls remaining and measures: Length, 14.7 mm.; greater diameter, 8.5 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 391850 contains 22 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) GRANIFERUM GRANIFERUM, new subspecies

Plate 32, Figure 8

We collected hundreds of specimens of this under rocks, in the arid region of the south coast of Providenciales. It is the smallest of the known races of *graniferum* and differs also from the others in having the granulose sculpture less pronounced; in fact, it is decidedly reduced on the last whorl.

The type (U.S.N.M. No. 469138) has almost 4 whorls remaining and measures: Length, 9.9 mm.; greater diameter, 6.0 mm.; lesser diameter, 4.9 mm.

U.S.N.M. No. 390974 contains 807 topotypes from the same source.

U.S.N.M. No. 390181 contains 3 specimens from the southeast point of Providenciales, Caicos Island group.

CHONDROPOMA (CHONDROPOMA) GRANIFERUM SAXICOLUM, new subspecies

Plate 32, Figure 5

This race we collected in large numbers under rocks at Kingston (Blue Hill), Providenciales, that is, on the north coast of the island. It is differentiated from the other races of *graniferum* by having very strongly granulose sculpture, with the last whorl decidedly solute and the summit strongly nodulose. The axial ribs are much more closely spaced than those of *Chondropoma (Chondropoma) graniferum malcolmense,* from which it is also distinguished by its larger size.

The type (U.S.N.M. No. 469137) has 4.3 whorls remaining and measures: Length, 13.4 mm.; greater diameter, 7.6 mm.; lesser diameter, 5.9 mm.

U.S.N.M. No. 390815 contains 51 topotypes from the same source.

U.S.N.M. No. 391597 contains 139 specimens collected by Bartsch under rocks at Blue Hill, Kingston, Providenciales, Caicos Island Group.

CHONDROPOMA (CHONDROPOMA) GRANIFERUM MALCOLMENSE, new subspecies

PLATE 32, FIGURE 7

We collected this race at Malcolm Bay on the northwest coast of Providenciales. It most nearly resembles *Chondropoma (Chondropoma) graniferum saxicolum* but differs from it in its smaller size and much more distantly spaced axial ribs.

The type (U.S.N.M. No. 469136) has 4.8 whorls remaining and measures: Length, 9.7 mm.; greater diameter, 7.0 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 390210 contains 7 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) MARIGUANICOLUM, new species

Shell of medium size, elongate-ovate, varying in color from flesh-color to pale yellow ground color, unicolor or banded with interrupted lines of brown; the elements composing these are also arranged in axial series and are present on both spire and base. Nuclear whorls about 1.5, forming an inconspicuous apex, which is slightly flattened at the summit. The nuclear whorls are smooth, except the last portion of the last turn, which shows the beginning of slender axial hairlike threads that gradually develop into the postnuclear axial sculpture. The postnuclear whorls are very strongly inflated, rounded, and marked by slender, slightly retractively curved axial riblets. The spiral sculpture consists of slender threads equaling the riblets in strength, which they render granulose at their junction. Suture channeled for almost half a turn behind the aperture; the rest feebly shouldered. Periphery inflated, strongly rounded. Base rather short, strongly rounded, marked like the spire by the continuation of the axial riblets and spiral threads. Umbilicus narrowly open. The last whorl is adnate to the preceding turn. The aperture is broadly ovate. Peristome double, the outer and inner fused, showing the separate nature only on the parietal wall and at the auricle at the posterior angle. Operculum typically chondropomoid.

This species is peculiar to Mariguana Island and the little cay south of it known as Booby Cay.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) MARIGUANICOLUM

Granulation very pronounced	mariguanicolum
Granulation less pronounced	stolidum

CHONDROPOMA (CHONDROPOMA) MARIGUANICOLUM MARIGUANICOLUM, new subspecies

PLATE 34, FIGURE 4

This race, which occupies Mariguana Island, is one of the most variable species, as far as size is concerned, specimens three times the size of the smallest being found in the same locality. The race is characterized by having a very pronounced granular sculpture, with rather feeble denticulations at the summit, a very narrow umbilicus, and with the parietal wall of the aperture adnate to the preceding turn.

It differs from *Chondropoma (Chondropoma) mariguanicolum stolidum* in being more inflated and in having coarser spiral sculpture, which is particularly the case on the base.

The type (U.S.N.M. No. 469130) has 4.2 whorls remaining and measures: Length, 14.2 mm.; greater diameter, 8.8 mm.; lesser diameter, 7.0 mm. I collected this at Abraham Hill.

The largest specimen (U.S.N.M. No. 391032), from the same locality, has 4.2 whorls remaining and measures: Length, 19.2 mm.; greater diameter, 11.8 mm.; lesser diameter, 9.8 mm.

U.S.N.M. No. 391626 contains 139 topotypes from the same source.

U.S.N.M. No. 391770 contains 13 specimens collected by Bartsch on John Dean's place on the west side of Mariguana Island.

U.S.N.M. No. 391620 contains 48 specimens collected by Bartsch from Betsy Bay, Mariguana Island.

In contrast I may mention the smallest specimen from John Dean's place on the west side of Caicos, which has 4.0 whorls remaining and measures: Length, 8.7 mm.; greater diameter, 6.8 mm.; lesser diameter, 5.2 mm.

I repeat, gradiants in size of this species may be found in any locality.

CHONDROPOMA (CHONDROPOMA) MARIGUANICOLUM STOLIDUM, new subspecies

PLATE 34, FIGURE 8

I collected this race on Booby Cay east of Mariguana Island. It is characterized by having the whorls more rotund and the sculpture much less strongly developed.

The type (U.S.N.M. No. 469131) has 4.0 whorls remaining, and measures: Length, 14.2 mm.; greater diameter, 8.9 mm.; lesser diameter, 7.0 mm.

U.S.N.M. No. 390453 contains 2 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) PANNOSUM, new species

Shell of medium size, elongate-ovate, with the sides rather straight, white or pale horn-color. Nuclear whorls 2, well rounded, finely granulose, forming a somewhat flattened apex; the last portion of the last turn is marked by fine, hairlike, retractive threads, which grow stronger on the first half postnuclear turn and finally pass into the regular postnuclear sculpture. The postnuclear whorls are almost flattened and are marked by slender, retractively curved axial riblets, which form minute nodules at the summit, and by spiral threads, which are a little stronger than the axial riblets. Suture slightly channeled, most so on the last part of the last turn. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, and marked by the continuation of the axial riblets and spiral threads, which become increasingly more distantly spaced from the periphery toward the umbilicus, and also extend over the parietal wall. The last whorl is solute for a fraction of a turn. The aperture is broadly ovate, decidedly angulated at the posterior angle, but slightly auriculated. Peristome moderately thin, apparently simple, although there is a slight indication toward doubling at the posterior angle. Operculum typically chondropomoid.

This species ranges over Great and Little Ragged Islands of the Ragged Island group.

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) PANNOSUM

Axial riblets very closely spaced.................................... **pannosum**
Axial riblets less closely spaced.................................... **panniculum**

CHONDROPOMA (CHONDROPOMA) PANNOSUM PANNOSUM, new subspecies

Plate 34, Figure 2

This race comes from Great Ragged Island. Its fine, closely spaced, axial riblets and more slender form will distinguish it from its neighbor *Chondropoma (Chondropoma) pannosum panniculum.*

The type (U.S.N.M. No. 469132) has 3.3 whorls remaining and measures: Length, 14.3 mm.; greater diameter, 8.3 mm.; lesser diameter, 7.0 mm. It was collected by the author.

U.S.N.M. No. 391513 contains 171 topotypes from the same source.

U.S.N.M. No. 390317 contains 15 specimens collected by Bartsch at the beach about Salt Pond on Great Ragged Island.

CHONDROPOMA (CHONDROPOMA) PANNOSUM PANNICULUM, new subspecies

Plate 34, Figure 1

This race comes from Little Ragged Island. It differs from *Chondropoma (Chondropoma) pannosum pannosum* in being stouter and in having the axial ribs more distantly spaced.

The type (U.S.N.M. No. 469133), collected by Bartsch, has 3.4 whorls remaining and measures: Length, 14.9 mm.; greater diameter, 9.9 mm.; lesser diameter, 7.4 mm.

U.S.N.M. No. 361199 contains 12 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) NECOPIUM, new species

Shell of medium size, pale horn-colored, with interrupted spiral bands of brown. These bands are arranged also in axial series and are rather emphasized as vertical zones than spiral elements. Nuclear whorls 2, inflated, strongly rounded, minutely granulose. The first postnuclear whorl is marked by closely spaced, hairlike, retractively slanting axial riblets, while the succeeding turns show gradually developed postnuclear sculpture. The postnuclear whorls are decidedly inflated in *Chondropoma (Chondropoma) necopium auspicatum* and less so in *C. (C.) necopium necopium,* marked by low rounded spiral threads, which are only very feebly affected by the axial lines of growth, to which the axial sculpture is reduced on the last whorl. On the earlier whorls the axial threads are a little stronger. The summit of the turns has faint whitish nodules. Suture narrowly channeled on almost all the turns. Periphery strongly inflated and well rounded. Base rather broadly umbilicated, marked by spiral threads a little stronger than those on the spire and the feeble axial hair lines. The last whorl is solute for about one-fifth of a turn. Aperture quite oblique, ovate, with a conspicuous auricle at the posterior angle. Peristome double; the two fused on the outer lip and coextensive. On the inner lip, particularly on the parietal wall, they appear more distant.

This species ranges through the northeastern half of the Caicos atoll.

I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) NECOPIUM

Shell elongate-ovate	**necopium**
Shell ovate	**auspicatum**

CHONDROPOMA (CHONDROPOMA) NECOPIUM NECOPIUM, new subspecies

PLATE 34, FIGURE 6

This race ranges from Grand Caicos south through East Caicos to South Caicos. It is distinguished from *Chondropoma (Chondropoma) necopium auspicatum* in having a more slender shell with less inflated whorls and in having the nodules at the summit more pronounced. The last whorl is also a little more widely solute.

The type (U.S.N.M. No. 469138) comes from a rocky hill at Lightborn Creek on the south side of the salt pond on Grand Caicos, where we collected hundreds of specimens. It has 3.9 whorls remaining and measures: Length, 14.1 mm.; greater diameter, 7.8 mm.; lesser diameter, 6.0 mm.

U.S.N.M. No. 391531 contains 645 topotypes from the same source.

U.S.N.M. No. 391360 contains 2 specimens collected by Bartsch on the east side of Little Halfway Creek, Grand Caicos.

U.S.N.M. No. 390474 contains 53 specimens collected by Bartsch from Stubb's guano cave at Cape Comete, East Caicos, Caicos Island group.

U.S.N.M. No. 391241 contains 17 specimens from Jones Hill, Cape Comete, East Caicos, Caicos Island group.

U.S.N.M. No. 391558 contains 52 specimens collected by Bartsch at Bell's Cay, Cape Comete, East Caicos, Caicos Island group.

U.S.N.M. No. 391546 contains 80 specimens from a hill on the west end of East Caicos, collected by Bartsch.

U.S.N.M. No. 391462 contains 25 specimens collected by Bartsch on the west side of a hill facing the Salt Pond on South Caicos.

CHONDROPOMA (CHONDROPOMA) NECOPIUM AUSPICATUM, new subspecies

PLATE 34, FIGURE 3

This race we found on Big Iguana Cay, off Cape Comete, East Caicos, and also at the north end of Six Hill Cay opposite South Caicos. Although these two localities are some distance apart, we were unable to find any distinct characters for the specimens. This race differs from *Chondropoma (Chondropoma) necopium necopium* in being stouter, in having the whorls much more inflated and more strongly rounded, and the nodules at the summit much weaker with the last whorl also a little less solute.

The type (U.S.N.M. No. 469140), collected by Bartsch, comes from Big Iguana Cay and has 3.5 whorls remaining and measures: Length, 13.0 mm.; greater diameter, 8.3 mm.; lesser diameter, 6.6 mm.

U.S.N.M. No. 391188 contains 19 topotypes from the same source.

U.S.N.M. No. 391553 contains 137 specimens collected by Bartsch on the north end of Six Hill Cay opposite South Caicos.

CHONDROPOMA (CHONDROPOMA) GLABRATUM Reeve

Shell rather large, ovate, heavy, pale wax-yellow, marked by interrupted spiral zones of brown whose elements are also arranged in axial series and not infrequently give to the axial banding a most pronounced aspect. Nuclear whorls 1.5, small, strongly rounded, minutely granulose, forming a somewhat bluntish apex. The last portion of the nuclear turn shows fine, retractively curved hairlines. These increase in strength on the first of the postnuclear turns, after which the typical postnuclear sculpture assumes sway. The postnuclear whorls are inflated, well rounded, and marked by low, slender, spiral threads, which are rendered feebly crenulated by the closely spaced, retractively curved axial riblets. The strength of this weak granulation varies somewhat in the different races. Suture well constricted. Periphery of the last whorl inflated, strongly rounded. Base short, strongly rounded, narrowly umbilicated and marked by the continuation of the sculpture of the spire, but near the umbilicus the spiral sculpture becomes somewhat strengthened. Aperture broadly ovate, slightly auriculate at the posterior angle. Peristome double; the outer and inner coextensive with the outer and basal lip distinguished by a mere impressed line on the parietal wall and best showing their separation at the posterior angle. The parietal wall is adnate to the preceding turn. Operculum typically chondropomoid.

Reeve, in his Conchologia Iconica, 1863, plate 2, figure 12, describes a shell and figures it and accredits it to Weinland, citing Malakozoologische Blatter, 1862. He gives its habitat as the Bahamas.

In the quotation I have given under *Chondropoma (Chondropoma) inaguense,* we find a statement by Weinland that he collected the species in question on Crooked Island, but he was inclined there to consider this *Chondropoma semilabre* (Lamarck).

Chondropoma (Chondropoma) semilabris (Lamarck) is a Haitian species which is described and figured in the earlier part of this bulletin. It is quite distinct from any of its Bahaman relatives. I am therefore applying the name *Chondropoma (Chondropoma) glabratum* Reeve to the shells that occupy the rim of the atoll formed by Crooked, Fortune, and Acklins Islands.

The following key will help to distinguish the three subspecies here recognized:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) GLABRATUM

Umbilicus moderately broad.. **glabratum**
Umbilicus narrow.
    Whorls decidedly inflated.. **fortunatum**
    Whorls less inflated.. **acklinsense**

CHONDROPOMA (CHONDROPOMA) GLABRATUM GLABRATUM Reeve

PLATE 35, FIGURE 7

1863. *Chondropoma glabratum* REEVE, Conchologia iconica, vol. 14, pl. 2, fig. 12.

This race, which comes from Crooked Island, has rather conspicuous color markings and is a little more widely umbilicated than the other two. The expanded lip is also heavier.

The specimen described and figured (U.S.N.M. No. 391833) has 3.3 whorls remaining and measures: Length, 15.3 mm.; greater diameter, 10.2 mm.; lesser diameter, 7.4 mm. This and 28 additional specimens were taken at the northeast point of Crooked Island by Bartsch.

U.S.N.M. No. 391773 contains 1 specimen collected by Bartsch at North West Point, Crooked Island.

U.S.N.M. No. 390372 contains 4 specimens collected by Bartsch at Rocky Point, northeast end of Crooked Island.

U.S.N.M. No. 124395 contains 1 specimen received from Weinland labeled "*semilabre* Lamarck, Crooked Island."

CHONDROPOMA (CHONDROPOMA) GLABRATUM FORTUNATUM, new subspecies

PLATE 35, FIGURE 6

This subspecies averages a little larger in size than typical *Chondropoma (Chondropoma) glabratum glabratum.* It is more elongate and has a narrow umbilicus and less strongly developed peristome. It comes from Fortune Island.

The type (U.S.N.M. No. 469134) I collected near Albert Town. It has 4 whorls remaining and measures: Length, 17.7 mm.; greater diameter 10.4 mm.; lesser diameter, 9.2 mm.

We also collected this race at various other stations on Fortune Island.

U.S.N.M. No. 391434 contains 16 topotypes from the same source.

U.S.N.M. No. 168324 contains 12 specimens collected by Henderson on Fortune Island.

U.S.N.M. No. 391744 contains 6 specimens collected by Bartsch on the east side of the lagoon on Fortune Island.

U.S.N.M. No. 391751 contains 3 specimens collected by Bartsch at Walker Bay, Fortune Island.

U.S.N.M. No. 391608 contains 153 specimens collected by Bartsch on the south side near the upper landing on Fortune Island.

U.S.N.M. No. 392728 contains 146 specimens collected by Bartsch on the south side near the upper landing on Fortune Island.

CHONDROPOMA (CHONDROPOMA) GLABRATUM ACKLINSENSE, new subspecies

Plate 35, Figure 5

We collected many hundreds of specimens of this race at many stations in various parts of Acklin Island. It differs from the other two races of *glabratum* in being almost without granules, these showing only on the early whorls. The umbilicus is also very narrow, in which it resembles *Chondropoma (Chondropoma) glabratum fortunatum,* but is at once distinguished from that by its feeble nodulation.

The type (U.S.N.M. No. 469135) I collected at Jamaica Bay. It has 4.5 whorls remaining and measures: Length, 17.0 mm.; greater diameter, 10.1 mm.; lesser diameter, 8.6 mm.

U.S.N.M. No. 391518 contains 41 topotypes from the same source.

U.S.N.M. No. 392389 contains 308 specimens collected by Bartsch on on rocks on the hill at Jamaica Bay.

U.S.N.M. No. 392353 contains 343 specimens collected by Bartsch on Spring Point, Acklins Island.

U.S.N.M. No. 392128 contains 729 specimens collected by Bartsch under stones between Snug Corner and the salt lagoon east of it, Mason Bay, Acklins Island.

U.S.N.M. No. 390409 contains 7 specimens collected by Bartsch on the west shore of the salt lagoon east of Snug Corner, Mason Bay, Acklins Island.

U.S.N.M. No. 391582 contains 4 specimens collected by Bartsch on the west shore of the salt lagoon east of Snug Harbor, Mason Bay, Acklins Island.

U.S.N.M. No. 392218 contains 302 specimens collected by Bartsch from the hills in from Cornucopia, Acklins Island.

U.S.N.M. No. 392211 contains 1 specimen collected by Bartsch at Cornucopia, Acklins Island.

U.S.N.M. No. 392236 contains 170 specimens collected by Bartsch at Pinnacle Point, Acklins Island.

U.S.N.M. No. 392202 contains 12 specimens collected by Bartsch at Indian Wells, Acklins Island.

U.S.N.M. No. 391258 contains 33 specimens collected by Bartsch at Delectable, Acklins Island.

CHONDROPOMA (CHONDROPOMA) HJALMARSONI Pfeiffer

Shell rather small, of wax-yellow ground color, marked with interrupted spiral bands of brown, which vary materially in number, width, and spacing, the elements composing them, however, being always arranged in axial as well as spiral series. Nuclear whorls almost 2, well rounded, finely granulose, forming a somewhat blunt apex. The last part of the nuclear turns shows some faint, retractively curved hairlines, which later develop into the axial elements of the postnuclear sculpture.

The postnuclear whorls are quite strongly rounded and marked by low spiral threads, which are a little narrower than the spaces that separate them. These cords are crossed by numerous closely spaced, almost obsolete hairlines, which, however, are not strong enough to render the spiral threads nodulose. Suture moderately constricted, channeled for about one-tenth of a turn behind the aperture. The summit of the whorls is very finely nodulose. Periphery of the last whorl inflated, strongly rounded. Base moderately long, openly umbilicated, and marked by the continuation of the same type of sculpture as that which characterizes the spire. There are fine spiral threads also in the umbilicus. Aperture very broadly ovate, moderately auriculated at the posterior angle. The parietal wall does not quite touch the preceding turn; it therefore leaves the last whorl slightly solute. Peristome double; the outer and inner fused, being differentiated only at the posterior angle. Operculum typically chondropomoid.

This species appears to range through the Turks Island group where I am recognizing several races, which the following key will help to distinguish:

KEY TO THE SUBSPECIES OF CHONDROPOMA (CHONDROPOMA) HJALMARSONI

Color marking strong.. **salinum**
Color marking not strong.
  Granules at summit strong................................ **gossypinum**
  Granules at summit feeble................................ **hjalmarsoni**

CHONDROPOMA (CHONDROPOMA) HJALMARSONI SALINUM, new subspecies

PLATE 35, FIGURE 2

This race comes from Salt Cay. In this the spiral color bands are very broad and the shell is much larger than the other two races and more elongate.

The type (U.S.N.M. No. 469142), collected by Bartsch, has 3.5 whorls remaining and measures: Length, 15.9 mm.; greater diameter, 9.9 mm.; lesser diameter, 7.8 mm.

U.S.N.M. No. 391863 contains 89 topotypes from the same source.

U.S.N.M. No. 391856 contains 1 specimen collected by Bartsch at the south end of Salt Cay.

CHONDROPOMA (CHONDROPOMA) HJALMARSONI GOSSYPINUM, new subspecies

PLATE 35, FIGURE 1

This subspecies comes from Cotton Island. It is characterized by having the color markings pale and the denticulation at the summit quite strong. In size it agrees fairly well with the typical race.

The type (U.S.N.M. No. 469148) has 3.2 whorls remaining and measures: Length, 13.0 mm.; greater diameter, 8.5 mm.; lesser diameter, 7.0 mm. It was collected by Bartsch.

U.S.N.M. No. 390834 contains 22 topotypes from the same source.

CHONDROPOMA (CHONDROPOMA) HJALMARSONI HJALMARSONI Pfeiffer

PLATE 34, FIGURE 3

1858. *Chondropoma hjalmarsoni* PFEIFFER, Malak. Blätter, vol. 5, p. 143, pl. 2, figs. 9-12.

This race was described from Turks Island and is distinguished from the other two here recognized by being smaller with the whorls more inflated and the banding more inclined toward forming axial zones. The granulations at the summit are also more feeble than in *Chondropoma (Chondropoma) hjalmarsoni gossypinum.*

The specimen described and figured (U.S.N.M. No. 11743) has 3.5 whorls remaining and measures: Length, 13.0 mm.; greater diameter, 8.2 mm.; lesser diameter, 6.7 mm. It was received from Thomas Bland.

U.S.N.M. No. 391928 contains 3 specimens collected by Bartsch.

U.S.N.M. No. 362839 contains 3 specimens intercepted by the Federal Horticultural Board at Philadelphia in soil about cactus plants from Turks Island.

CHONDROPOMA (CHONDROPOMA) PLANICOLUM, new species

PLATE 34, FIGURE 7

Shell of medium size, elongate-ovate, the ground color wax-yellow, marked with several rows of interrupted spiral bands of brown; the elements composing these bands are also in axial series and show plainly within the aperture and on the edge of the peristome. Nuclear whorls almost 2, inflated, strongly rounded, minutely granulose, the last portion of the last turn showing a few axial hairlines. Postnuclear whorls inflated, moderately strongly rounded, and marked by low depressed spiral threads, of which 14 occur between the summit and the suture. In addition to this, there are fine lines of growth that hardly merit the name of riblets, although they are fairly regular. Suture strongly constricted, but not channeled. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, narrowly openly umbilicated and marked by spiral threads like those on the spire, but these become a little more definitely spaced and stronger toward the umbilicus. Aperture ovate. Peristome double; the outer forming a strong auricle at the posterior angle; the inner appressed to the outer, coextensive on the outer and basal lip and separated by a mere line on the inner and parietal wall and the posterior angle. Operculum typically chondropomoid.

The type (U.S.N.M. No. 469129) I collected on the western of the two Plana Islands. It has 3.5 whorls remaining and measures: Length, 14.3 mm.; greater diameter, 9.0 mm.; lesser diameter, 7.1 mm.

U.S.N.M. No. 391755 contains 60 topotypes from the same source.

U.S.N.M. No. 390887 contains 18 specimens collected by Bartsch on the east side of the western Plana Island.

This species is easily distinguished from all the other Bahaman Chondropomas by its lack of channeling of the suture, even immediately behind the aperture. The absence of granular sculpture combined with this is of assistance in its determination.

CHONDROPOMA (CHONDROPOMA) INAGUENSE (Weinland)

PLATE 35, FIGURE 4

1880. *Cyclostoma (Chondropoma?) inaguense* WEINLAND, Jahrb. deutschen malak. Ges., vol. 7, pp. 345–346, pl. 12, fig. 6.

Shell scarcely perforated, ovate, pupiform, entire, solid, rendered conspicuously and elegantly reticulate by strong spiral lines and longitudinal striations. Suture scarcely impressed. Whorls 5.5, slightly convex, almost flattened, the last solute, carinated at the posterior angle. Aperture vertical, angulately oval. Peristome simple with the margin expanded. Operculum? Length, 13.0 mm.; diameter, 6.0 mm.; aperture, 4.0 mm. long and 3.5 mm. wide. Collected by Sargent on Little Inagua.

The above is a free translation of Weinland's description. I have seen no specimens of this species and continue to quote from Weinland, who says: "Related to *Chondropoma semilabre* Lamarck (*glabratum* 'Weinland' Reeve), which was lost and which we again discovered in 1857 on Crooked Island of the Bahamas. It differs from this by its solute last whorl, deeper suture and relatively smaller, particularly shorter, aperture. It is an interesting species whose habitus reminds one of *Megalomastoma*, particularly of the Tertiary *Megalomastoma pupa* from Hochheim, near Frankfurt am Main, but differs from this by the sculpture of the shell and the aperture. It undoubtedly belongs closely to its related *Chondropoma semilabre*.

"From *Chondropoma hjalmarsoni* Pfeiffer it differs by its solute last whorl and the relatively much smaller aperture and by the fact that the shell remains entire, that is, does not become decollated. It seems likely to us that the three species, *Chondropoma semilabre, C. hjalmarsoni* and *C. inaguense*, once upon a time when the islands were still united, belonged to one and the same species."

In the light of our modern oceanographic and geologic data, the last statement is hardly supported.

THE STATUS OF CHONDROPOMA (CHONDROPOMA) SOROR PILSBRY

1930. *Chondropoma soror* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 299, pl. 30, fig. 6.

1930. *Chondropoma parvicaymanense* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, pp. 352–353, pl. 30, fig. 5.

Following a detailed description of this species Pilsbry states:

"While it seems unlikely that a shell of this size would remain undiscovered in the neighborhood of Nassau, I am unable to find an Antillean species with which it agrees, but it is so similar to *C. parvicaymanense* of Little Cayman that it seems possible that Maynard got his labels or shells mixed, and that this is really from some of the Cayman group. It differs from *C. parvicaymanense* by the more compact form, the sutures being less impressed, and by the noticeably coarser sculpture. It was received from Mr. Maynard in 1897."

Comparing specimens received from Dr. Pilsbry with the large series of specimens I collected on Little Cayman Island leaves no doubt about its being *Chondropoma (Chondropoma) parvicaymanense* Pilsbry. Maynard made extensive collections on New Providence and also on Little Cayman, and through some unfortunate slip wrote Nassau, New Providence, when he should have stated Little Cayman.

The two names having the same date, I deem it best to suggest the suppression of *Chondropoma (Chondropoma) soror* Pilsbry.

Subfamily RHYTIDOPOMINAE Henderson and Bartsch

1920. Rhytidopominae HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, pp. 64–65.

Shell ranging from elongate-conic through ovate to turbinate. Axial ribs are always present; they may vary from mere threads to lamellar; they may terminate simply; they may become expanded at the summit into broad denticles or even fused there into hollow cusps or tufts. Spiral threads may be present on spire, base, and umbilicus, or in the umbilicus only, or they may be even entirely absent. The last whorl may be adnate or solute, and the umbilicus may be open or closed. The operculum has as a basis a chondroid plate composed of several whorls, the outer surface of which bears numerous, retractively slanting, raised lamellae, which vary greatly in strength in the different genera. They may extend completely across each whorl or they cover only a part of it, as in *Opisthosiphon*. These lamellae may or may not be fused on their inner and outer termination. They may be rather distantly spaced or they may be almost fused at their edge. Special devices for breathing when the operculum closes the shell may be present or absent. They show an enormous range of specialized development, which will be discussed under each genus.

Type genus: *Rhytidopoma* Sykes.

KEY TO THE BAHAMAN GENERA OF THE SUBFAMILY RHYTIDOPOMINAE

Siphon present	**Opisthosiphon**
Siphon absent	**Colonina**

Genus OPISTHOSIPHON Dall

1905. *Opisthosiphon* DALL, Proc. Malac. Soc. London, vol. 6, p. 209, March.
1905. *Opisthosolen* DALL, The Bahama Islands, Geogr. Soc. Baltimore, p. 42, May.

The shell varies from broadly ovate through elongate-ovate to cylindroconic. The nuclear whorls are microscopically granulose. The early postnuclear turns may be solute or appressed to the preceding whorl.

Axial ribs are always present, varying in different groups from slender, hairlike elements to lamellae; their spacing varies widely in different groups. Fine microscopic axial threads may or may not be present between the heavier ribs. The spiral sculpture may consist of strong cords that may be present on all parts of the surface, or it may be restricted to the umbilicus, or may be entirely absent. The last whorl may be solute or adnate to the preceding turn. The umbilicus presents a wide range of variances. It may be narrow or wide, open or closed. The aperture also presents considerable difference, varying from oval to subcircular, with the peristome always double; the inner peristome may be slightly or somewhat exserted; the outer peristome ranges from narrow to broadly expanded in different species and this expansion may extend over the entire lip or it may characterize only part of it. An auricle may or may not be present at the posterior angle. The operculum has the whorls separated by a narrow, deep groove, which on the last whorl constitutes the plain chondroid edge. The parts of the whorls between this inner edge and the groove are crossed by numerous, retractively curved, decidedly strongly raised lamellae separated by narrow spaces. Behind the aperture is the breathing siphon, upon which the generic name is based. This tube communicates by a puncture with the interior of the aperture near the posterior angle, slightly behind the edge of the peristome. The siphonal tube is usually directed upward and backward into the suture, though in a number of species with closed umbilicus the tube does not communicate at once with the free surface, but with a channel situated behind the broadly expanded, adnate parietal peristome of the outer lip, which in turn communicates with the hollow axis of the shell, and through this with the exterior through the decollated apex of the shell.

Type species: *Ctenopoma bahamense* Shuttleworth = *Opisthosiphon (Opisthosiphon) bahamensis* (Shuttleworth).

By an error, the name *Opisthosolen* crept into Dall's "List of Bahama Land Shells" where on page 42[1] are listed:

Opisthosolen biforme Pfr.
Opisthosolen biforme var. *bahamensis* Shuttl.
Opisthosolen rawsoni Pfr.

An errata slip at the end of the volume states: "Owing to the fact that the author did not see final proofs of this paper some corrections are needed:

"Page 42, line 30 from top, for '*Opisthosolen*' read *Chondropoma.*

"Line 32 from top, for '*Opisthosolen biformis* var.' read *Opisthosiphon bahamensis.*

"Line 33 from top, for '*Opisthosolen*' read *Opisthosiphon.*

"Line 36 is to be deleted entirely."

In order that there may never be a question about the nonavailability of *Opisthosolen,* I now select as type for that name *Ctenopoma bahamense* Shuttleworth = *Opisthosolen biformis bahamensis* (Shuttleworth) Dall = *Opisthosiphon (Opisthosiphon) bahamensis* (Shuttleworth).

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[1] The Bahama Islands. Geogr. Soc. Baltimore, May 1905.

KEY TO THE BAHAMAN SUBGENERA OF OPISTHOSIPHON

Spiral sculpture present.
  Spiral sculpture confined to umbilical wall.............. Opisthosiphona
  Spiral sculpture not confined to umbilical wall........... Opisthosiphon
Spiral sculpture absent.................................... Leptopisthosiphon

Subgenus OPISTHOSIPHONA Henderson and Bartsch

1920. *Opisthosiphona* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 68.

Opisthosiphons without spiral sculpture on spire and base, the spiral threads being present in the umbilicus only, and with the axial ribs terminating individually without fusing at the summit. There are no microscopic axial lines between the axial ribs.

Type species: *Cyclostoma moreletianum* Petit = *Opisthosiphon (Opisthosiphona) moreletianum* (Petit).

KEY TO THE BAHAMAN SPECIES OF OPISTHOSIPHONA

Outer lip of outer peristome broadly expanded.
  Axial ribs distantly spaced.
    Axial ribs lamellose.................................. insulae-felis
    Axial ribs not lamellose.................................. maynardi
  Axial ribs not distantly spaced.................................. simpsoni
Outer lip of outer peristome not broadly expanded.............. acklinsensis

OPISTHOSIPHON (OPISTHOSIPHONA) INSULAE-FELIS Clench

PLATE 34, FIGURE 5

1938. *Opisthosiphon bahamense insulae-felis* CLENCH, Bull. Mus. Comp. Zool., vol. 80, pp. 515, 516, pl. 2, figs. 1, 7.

Decollated shell ovate, soiled white in the dead stage. Nuclear whorls decollated. The postnuclear whorls are slightly shouldered at the summit, well rounded, and crossed by slightly retractively curved, lamellose axial ribs, which develop into cusps at the summit. These ribs are distantly spaced, and between them there are fine hairlines which vary in number. Suture strongly constricted. Periphery well rounded. Base short, well rounded, openly umbilicated, and marked by several spiral threads which render the axial ribs nodulose. Aperture obliquely oval; peristome double, the inner moderately exserted; the outer expanded and reflected, a little narrower on the outer lip than on the inner and parietal wall. The last whorl is slightly solute, but the expanded outer peristome is adnate to the preceding turn.

The specimen described and figured (Mus. Comp. Zool. No. 107906) is a paratype. It was collected by Clench and Russell in 1936 on Cat Island, Bahama. It has 3.4 whorls remaining and measures: Length, 10.9 mm.; greater diameter, 6.5 mm.; lesser diameter, 5.1 mm.

The lamellose axial ribs will readily distinguish this species from all the other known Opisthosiphonas.

OPISTHOSIPHON (OPISTHOSIPHONA) MAYNARDI Vanatta

PLATE 36, FIGURE 2

1920. *Opisthosiphon maynardi* VANATTA, Proc. Acad. Nat. Sci. Philadelphia, vol. 72, pp. 204–205, pl. 6, figs. 9, 10, 11, 13.

Shell moderately large, the early remaining whorls reddish brown, the last flesh-colored, marked with faint interrupted spiral bands of brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls well rounded, marked by weak, distantly spaced axial riblets. The spaces separating these riblets are twice or more as wide as the riblets. The riblets become expanded at the summit to form hollow tubercles. Of the axial ribs, 58 occur on the last whorl in the type. Suture on the early whorls narrowly channeled, less so on the last turn which is almost appressed. Periphery well rounded. Base rather short, openly umbilicated, marked by the continuation of the axial ribs and on the umbilical wall by several weak spiral threads. Aperture oval; peristome double, the outer very broadly expanded, a little wider on the inner lip, forming a slight auricle at the posterior angle, and marked by rather strongly raised concentric lamellae; inner peristome slightly exserted. Operculum typically opisthosiphonid.

The specimen described and figured is one of five topotypes (U.S.N.M. No. 426035) received from C. J. Maynard, who collected them at Nassau, New Providence. It has 3.7 whorls remaining and measures: Length, 10.2 mm.; greater diameter, 5.5 mm.; lesser diameter, 5.0 mm. The other 4 specimens yield the following measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
4.2	10.7	6.2	4.8
3.5	10.0	5.7	5.0
4.0	10.7	6.5	5.2
4.0	11.5	6.0	5.3

OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI, new species

Shell elongate-conic, varying in the various races from flesh-colored through pale brown to roseate, unicolor or marked with interrupted spiral bands of brown; the early turns are usually a little darker than the later; the aperture varies with the external coloration, and so does the peristome. Nuclear whorls almost 2, small, smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls moderately rounded, narrowly shouldered at the summit, marked by numerous, very fine, closely spaced, slightly retractively slanting axial ribs, some of which become expanded at the summit to form slender denticles. Suture narrowly channeled. Periphery of the last whorl well rounded. Base short, openly umbilicated, strongly rounded. Within the umbilical area a number of spiral cords are present. Aperture broadly oval, almost subcircular; peristome double, the outer expanded, marked by feeble concentric lamellae, adnate to the preceding turn on the parietal wall; there is a feeble auricle at the posterior angle which is appressed to the breathing siphon; the inner peristome is slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

This species is present on the northern Bahamas where it breaks up into several subspecies as follows:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI

Axial ribs very closely spaced.	
Whorls conspicuously banded	**simpsoni**
Whorls not conspicuously banded	**bryanti**
Axial ribs not very closely spaced.	
Inner lip of outer peristome very broad	**abacoensis**
Inner lip of outer peristome moderately broad	**saccharinus**

OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI SIMPSONI, new subspecies

PLATE 36, FIGURE 1

This subspecies was collected by Owen Bryant at Riding Point, Grand Bahama.

In the closeness of the ribbing, this subspecies resembles most nearly *Opisthosiphon (Opisthosiphona) simpsoni bryanti,* from which it is easily distinguished by its more cylindroid form, less open umbilicus, and absence of conspicuous spiral banding.

The type (U.S.N.M. No. 355449) has 102 axial ribs on the last whorl. It has a little more than 4 whorls remaining and measures: Length, 11.0 mm.; greater diameter, 6.0 mm.; lesser diameter, 4.9 mm.

U.S.N.M. No. 180682 contains 13 topotypes, which yield the following additional average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	12.2	6.5	5.3
Least	8.7	5.3	4.4
Average	10.4	6.0	4.9

OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI BRYANTI, new subspecies

PLATE 36, FIGURE 3

This subspecies was collected by Owen Bryant at Lubbers Quarters, a cay lying a little south of the center of the east coast of Abaco Island.

This subspecies has the axial riblets closely spaced. In this character it resembles *Opisthosiphon (Opisthosiphona) simpsoni simpsoni,* from which its more broadly expanded peristome and the exceedingly feeble color banding will distinguish it.

The type (U.S.N.M. No. 355452) has 186 axial ribs on the last turn. It has almost 4 whorls remaining and measures: Length, 10.3 mm.; greater diameter, 5.7 mm.; lesser diameter, 4.8 mm.

Three topotypes (U.S.N.M. No. 180680) yield the following measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
4+	11.6	6.1	5.0
3+	10.5	6.1	5.0
3+	9.7	5.7	4.8

OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI ABACOENSIS, new subspecies

Plate 36, Figure 4

This subspecies was collected by Owen Bryant at Matthew Point on the south-central coast of Great Abaco Island. It is readily distinguished from the other races of *simpsoni* by its deeply channeled suture. It is nearest related to *Opisthosiphon (Opisthosiphona) simpsoni saccharinus,* as far as the more distant spacing of the axial ribs is concerned, but differs from this also in having the inner lip of the outer peristome much less expanded.

The type (U.S.N.M. No. 355451 has 138 axial ribs on the last whorl and has a little more than 3 whorls remaining. These measure: Length, 10.7 mm.; great diameter, 6.5 mm.; lesser diameter, 5.1 mm.

Three topotypes (U.S.N.M. No. 180686) yield the following measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
4+	8.6	5.4	4.3
4+	10.1	5.4	4.4
4+	9.7	6.2	4.8

OPISTHOSIPHON (OPISTHOSIPHONA) SIMPSONI SACCHARINUS, new subspecies

Plate 36, Figure 11

This subspecies was collected by Owen Bryant on Sugar Loaf Cay off the north central coast of Great Abaco Island. It is nearest related to *Opisthosiphon (Opisthosiphona) simpsoni simpsoni,* from which it differs in being more slender, in having fewer ribs, and in lacking the conspicuous banding.

The type (U.S.N.M. No. 355450) has 134 axial ribs on the last whorl, has a little more than 3 whorls remaining, and measures: Length, 10.1 mm.; greater diameter, 5.8 mm.; lesser diameter, 4.4 mm.

Five topotypes (U.S.N.M. No. 180685) yield the following average measurements:

	Number of whorls	Length	Greater diameter	Lesser diameter
		Mm.	*Mm.*	*Mm.*
Greatest. .	3+	8.9	5.5	4.1
Least	3+	8.2	4.8	3.8
Average . .	3+	8.56	5.14	3.94

OPISTHOSIPHON (OPISTHOSIPHONA) ACKLINSENSIS, new species

PLATE 36, FIGURE 9

Shell rather large, horn-colored, with conspicuous interrupted spiral bands of brown. The elements composing these bands are arranged in both axial and spiral series. Nuclear whorls about 2, well rounded, smooth. Postnuclear whorls well rounded, marked by moderately strong axial riblets, some of which are expanded at the summit into rather conspicuous cusps. Of these riblets 139 occur on the last turn. Suture narrowly channeled. Periphery well rounded. Base moderately long, well rounded, openly umbilicated, and marked by the continuation of the axial ribs, and on the outer portion of the umbilical wall by three moderately strong spiral cords. The last whorl is solute for about one-tenth of a turn. Aperture oval; peristome double, the outer broadly expanded on the inner lip, narrowly expanded on the outer lip, forming a rather conspicuous auricle at the posterior angle, which embraces the reflected siphon; the inner peristome is slightly exserted and reflected.

The type (U.S.N.M. No. 536801) I collected at Spring Point, Acklins Island. It is a complete specimen, having 7.6 whorls and measuring: Length, 15.0 mm.; greater diameter, 6.2 mm.; lesser diameter, 5.8 mm.

U.S.N.M. No. 392355 contains 249 topotypes from the same source.

U.S.N.M. No. 390873 contains 235 specimens collected by Bartsch at Pinnacle Point.

U.S.N.M. No. 390616 contains 47 specimens collected by Bartsch at Indian Wells.

U.S.N.M. No. 390917 contains 1 specimen collected by Bartsch at Jamaica Bay.

U.S.N.M. No. 391265 contains 35 specimens collected by Bartsch at Delectable.

U.S.N.M. No. 392220 contains 2 specimens collected by Bartsch at Snug Corner.

U.S.N.M. No. 390628 contains 5 specimens collected by Bartsch on the hills in from Cornucopia, Acklins Island.

Subgenus OPISTHOSIPHON Dall

1905. *Opisthosiphon* DALL, Proc. Malac. Soc. London, vol. 6, p. 209.

Opisthosiphons with spiral threads on spire, base, and umbilicus.

Type species: *Ctenopoma bahamense* Shuttleworth = *Opisthosiphon (Opisthosiphon) bahamensis* (Shuttleworth).

KEY TO THE BAHAMAN SPECIES OF THE SUBGENUS OPISTHOSIPHON

- Inner lip of outer peristome notched, posterior portion reflected to close umbilicus.
  - Axial ribs distantly spaced .... nicholasi
  - Axial ribs not distantly spaced .... alleni
- Inner lip of outer peristome not notched, posterior portion not reflected to close umbilicus.
  - Last whorl solute.
    - Axial ribs very distantly spaced .... mayori
    - Axial ribs not very distantly spaced.
      - Last whorl strongly deflected .... millsi
      - Last whorl not strongly deflected.
        - Axial ribs very strong .... androsensis
        - Axial ribs weak .... reticulatus
  - Last whorl not solute.
    - Spiral sculpture of spire very feeble .... eleutheraensis
    - Spiral sculpture of spire not very feeble.
      - Axial ribs distantly spaced.
        - Junctions of the axial ribs and spiral threads sharply nodulose .... turkensis
        - Junctions of the axial ribs and spiral threads not sharply nodulose .... vaughani
      - Axial ribs not distantly spaced.
        - Inner lip of outer peristome very broadly expanded .... bahamensis
        - Inner lip of outer peristome not very broadly expanded.
          - Shell short and stout .... phoenicopterus
          - Shell not short and stout.
            - Axial ribs fine and closely spaced .... goldingi
            - Axial ribs not fine nor closely spaced .... drewi

OPISTHOSIPHON (OPISTHOSIPHON) NICHOLASI, new species

PLATE 36, FIGURE 6

Shell small, elongate-conic, thin, flesh-colored, with very slender interrupted spiral lines of brown, of which three occur between the summit and the suture; the peristome is yellowish white. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, narrowly shouldered at the summit, marked by very slender, distantly spaced, almost vertical axial riblets, of which 50 occur on the first of the remaining turns and 58 on the rest. The spiral sculpture consists of rather strong threads, which equal the riblets in strength and which render these somewhat wavy. Of these six occur on the first and nine on the remaining turns. Suture channeled. Periphery inflated, well rounded. Base short, well rounded, marked by six slender spiral threads and two heavier ones near the umbilical chink. Aperture broadly oval; peristome double, the outer broadly expanded, deeply notched on the inner lip, and reflected posterior to the notch over the umbilicus which it completely covers; on the parietal wall it is adnate to the preceding turn; there is a moderately strong auricle embracing the siphon; inner peristome slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

The type (U.S.N.M. No. 536844) was collected by C. C. Allen at Nicholas Town, Andros Island, Bahamas. It has a little over 3 whorls and measures: Length, 7.8 mm.; greater diameter, 4.5 mm.; lesser diameter, 3.6 mm.

Two topotypes (U.S.N.M. No. 359897) yield the following additional measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
3+	8.2	4.7	3.7
3+	7.3	4.2	3.3

This species is nearest related to *Opisthosiphon (Opisthosiphon) alleni,* from which it may at once be distinguished by its much smaller size.

OPISTHOSIPHON (OPISTHOSIPHON) ALLENI, new species

Shell rather large, elongate-conic, ranging from flesh-color to pale brown. Nuclear whorls decollated in all our specimens. Postnuclear whorls strongly rounded and marked by retractively curved, slender axial riblets. Some of these become expanded at the summit and enlarged to form hollow cusps. There are usually one or more unexpanded riblets between these cusps. The spiral sculpture consists of weak threads. Suture slightly channeled. Periphery well rounded. Base moderately long, well rounded, and marked by the continuation of the axial rib and spiral threads, a few of which are apparent also on the exposed umbilical wall. Aperture broadly oval; peristome double, the outer broadly expanded, a little wider on the inner and parietal lip than on the outer and basal, notched on the middle of the inner lip. Posterior to the notch, the inner lip is reflected over the umbilicus, which it completely covers. The outer peristome is marked by slender concentric lamina and is slightly auriculated at the posterior angle, where it is rendered irregular by the siphon; the inner peristome is slightly exserted and slightly expanded. Operculum typically opisthosiphonid.

This species occupies the islands of New Providence and Eleuthera. I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) ALLENI

Axial riblets closely spaced	**providentialis**
Axial riblets not closely spaced	**alleni**

OPISTHOSIPHON (OPISTHOSIPHON) ALLENI PROVIDENTIALIS, new subspecies

PLATE 36, FIGURE 12

This subspecies was collected by C. C. Allen in considerable abundance on the Island of New Providence. It is distinguished from *Opisthosiphon (Opisthosiphon) alleni alleni* by having stronger spiral sculpture and a much larger number of axial ribs. In the type there are 55 axial ribs on the first of the remaining turns, 93 on the second, 123 on the third, and 127 on the last nine-tenths of a turn. Of spiral threads, there are 8 on the first and second and 12 on the remaining turns, while the base has 6, and 3 show on the outer edge of the umbilical wall.

The type (U.S.N.M. No. 536846) comes from Nassau, New Providence. It has 3.9 whorls remaining and measures: Length, 12.0 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.8 mm.

U.S.N.M. No. 467067 contains 65 topotypes from the same source.

OPISTHOSIPHON (OPISTHOSIPHON) ALLENI ALLENI, new subspecies

PLATE 36, FIGURE 10

This subspecies was collected by Professor H. F. Wickham on Egg Island, one of the small cays close to Eleuthera, and by C. C. Allen in the region of Current Sound, Eleuthera. It is easily distinguished from *Opisthosiphon (Opisthosiphon) alleni providentialis* by having weaker spiral sculpture and a much lesser number of axial ribs. Of axial ribs in the type 44 are present on the first, 67 on the second, 79 on the third, and 97 on the last of the remaining turns. The spiral threads on all but the last whorl are quite poorly defined; the type has 10 between summit and suture; there are also 6 spiral threads on the base and 2 at the outer edge of the umbilical wall.

The type (U.S.N.M. No. 536845) has 4 whorls remaining and measures: Length, 10.8 mm.; greater diameter, 5.5 mm.; lesser diameter, 4.8 mm. It comes from Egg Island, near Eleuthera.

U.S.N.M. No. 509943 contains 3 topotypes from the same source.

U.S.N.M. No. 467155 contains 1 specimen from the sea cliff near Current Sound, Eleuthera.

OPISTHOSIPHON (OPISTHOSIPHON) MAYORI, new species

PLATE 36, FIGURE 13

The type of this species is a dead shell and therefore of whitish coloration. The nuclear whorls are decollated. The postnuclear whorls are strongly rounded, appressed at the summit, and marked by very distantly spaced, retractively slanting axial ribs, of which 44 occur on all the turns. Most of these riblets become expanded into a sharp cusp at the summit. The spiral sculpture consists of not very strongly developed threads, of which 7 are present on the first and 10 on the remaining turns. Suture strongly constricted. Periphery inflated, strongly rounded. Base short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs and five spiral threads. Within the umbilicus eight additional spiral threads are present. Last whorl solute for about one-third of a turn. Aperture subcircular; peristome double, the outer broadly, flaringly expanded, a little wider on the inner lip than the outer, with an auricle at the posterior angle of the aperture in the middle of which the breathing siphon is situated; inner peristome exserted and slightly expanded. Operculum?

The type (U.S.N.M. No. 355429) was collected by Bartsch on John Flower Key, Middle Bight, Andros Island, Bahamas. It has a little more than 3 whorls and measures: Length, 9.0 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.0 mm.

The solute last whorl and the very distantly spaced ribbing will distinguish this species from all the other Opisthosiphons.

I take pleasure in naming this unique species for the late Dr. Alfred S. Mayor, former director of the Marine Biological Laboratory at the Tortugas, of the Carnegie Institution.

OPISTHOSIPHON (OPISTHOSIPHON) MILLSI, new species

PLATE 36, FIGURE 14

Shell elongate-conic, flesh-colored, with rather broad interrupted spiral bands of brown; the elements composing these bands are arranged in both axial and spiral series. Nuclear whorls decollated in our specimens. Postnuclear whorls strongly rounded, narrowly shouldered at the summit, and marked by rather strong, retractively slanting axial ribs, of which 70 occur on the first of the remaining turns in the type, 80 on the second, and 94 on the last. Most of these ribs extend prominently to the summit, where they form slender hollow cusps. The spiral sculpture is poorly developed on the first of the remaining postnuclear turns; on the second 8 low threads are present, and on the last 12 occur between the summit and periphery. These threads render the little riblets slightly wavy. Suture strongly constricted, somewhat channeled. Periphery inflated, strongly rounded. Base short, well rounded, openly umbilicated and marked by the continuation of the axial ribs and six spiral threads, while within the umbilicus four or more additional threads are apparent. The last whorl is solute for about one-fourth of a turn. Aperture broadly oval, almost circular; peristome double, a little wider on the inner lip than the outer, forming a conspicuous auricle, which is rendered irregular by the siphon immediately behind it at the posterior angle of the aperture; inner peristome somewhat exserted and slightly reflected. Operculum typically opisthosiphonid.

The type (U.S.N.M. No. 355525) was collected by Bartsch on the edge of a pine coppice about one-half mile north and east of the western end of South Bight on Mangrove Key, Andros Island, Bahamas. It has a little more than 3 whorls and measures: Length, 8.8 mm.; greater diameter, 5.5 mm.; lesser diameter, 4.3 mm.

U.S.N.M. No. 269710, contains a topotype which has a little more than 3 whorls and measures: Length, 8.6 mm.; greater diameter, 4.6 mm.; lesser diameter, 3.9 mm.

This species is nearest related to *Opisthosiphon (Opisthosiphon) mayori,* from which it is readily distinguished by the much closer ribbing.

I take pleasure in naming this species for John Mills, of the Carnegie Institution, whose helpfulness during my Andros exploration was greatly appreciated.

OPISTHOSIPHON (OPISTHOSIPHON) ANDROSENSIS Pilsbry

PLATE 35, FIGURE 8

1930. *Opisthosiphon androsense* PILSBRY, Proc. Acad. Nat. Sci. Philadelphia, vol. 82, p. 298, pl. 30, fig. 9.

Shell decollated; the whorls remaining are somewhat inflated and well rounded. They are crossed by strong, slightly retractively slanting axial ribs, which develop into strong hollow cusps at the summit. Of these ribs 53 are present on the last turn. The spiral sculpture consists of low rounded threads, of which seven are present between the summit and the periphery; they are not all of the same strength. The space between the summit and the first spiral thread is about as wide as the two spiral threads and their intervening space below it. The periphery is well rounded. The base is moderately long, openly umbilicated, well rounded, and marked by nine spiral cords. A number of feeble indications of spiral cords are present on the umbilical wall. Suture channeled. Aperture oval, oblique; peristome double. The inner peristome is slightly exserted, reflected over and appressed on the inner lip. The outer peristome consists of a series of lamellae and is much broader over the umbilicus than elsewhere. The siphon is backward directed and almost appressed to the preceding turn. The last whorl is solute for about one-tenth of a turn and the posterior angle on the outside is rendered strongly denticulated by the axial ribs.

The type (Acad. Nat. Sci. Phila. No. 151789) has 3.8 whorls remaining and measures: Length, 8.6 mm.; greater diameter, 5.0 mm. Through the courtesy of Dr. Pilsbry I have been able to examine and figure the type, which was collected by Maurice Black in gravel on the shore of Stafford Lake, Andros Island.

This species is nearest related to *Opisthosiphon (Opisthosiphon) mayori*. It agrees with it in the strong ribbing and the solute last whorl, but here the ribs are much more closely spaced than in that species.

OPISTHOSIPHON (OPISTHOSIPHON) RETICULATUS, new species

Shell of medium size, elongate-ovate, white or pale yellow. Nuclear whorls about 2, well rounded, smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls inflated, strongly rounded, and marked by slightly retractively curved axial riblets, most of which develop hollow cusps at the summit. The spiral sculpture consists of slender threads, which render the entire surface reticulated. Suture channeled. Periphery inflated, strongly rounded. Base rather short, inflated, strongly rounded, openly umbilicated, and marked by the continuation of the axial ribs and spiral threads. The umbilical wall is also marked by spiral threads. Aperture broadly oval; peristome double, the outer moderately broadly expanded, almost of the same width all around and adnate or free from the preceding whorl at the parietal wall. There is a slight auricle at the posterior angle, embracing the siphon; inner peristome moderately exserted and reflected. Operculum typically opisthosiphonid.

This species appears confined to some of the southern cays of the Ragged Island chain.

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) RETICULATUS

Spiral cords on base 12	**reticulatus**
Spiral cords on base 8	**pannosus**

OPISTHOSIPHON (OPISTHOSIPHON) RETICULATUS RETICULATUS, new subspecies

PLATE 36, FIGURE 7

This subspecies I collected on the south side of the Buena Vista Cay of the Ragged Island group. It differs from *Opisthosiphon (Opisthosiphon) reticulatus pannosus* in having the sculpture less strongly developed and in having a greater number of spiral threads on the base. In the type there are 43 axial riblets on the first, 65 on the second, 55 on the third, and 52 on the last seven-tenths of the last of the remaining whorls. There are 6 spiral threads between summit and suture on the first, 13 on the rest, while the base has 12 and the umbilical wall 8.

The type (U.S.N.M. No. 536847) has 3.7 whorls remaining and measures: Length, 9.3 mm.; greater diameter, 5.5 mm.; lesser diameter, 4.7 mm.

U.S.N.M. No. 390776 contains 19 topotypes from the same source.

OPISTHOSIPHON (OPISTHOSIPHON) RETICULATUS PANNOSUS, new subspecies

PLATE 36, FIGURE 5

This subspecies I collected on Great Ragged Cay about the salt pans. It differs from *Opisthosiphon (Opisthosiphon) reticulatus reticulatus* in having stronger sculpture and in having the last whorl less inclined to soluteness; some specimens are adnate. In the type there are 42 axial ribs on the first, 57 on the second, 66 on the third, and 28 on the last third of a turn of the remaining whorls. Of spiral threads there are 6 on the first, 9 on the second, 12 on the third, 8 on the base, and 8 on the umbilical wall.

The type (U.S.N.M. No. 390327) has 3.3 whorls remaining and measures: Length, 9.0 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.8 mm.

U.S.N.M. No. 391512 contains 5 topotypes from the same source.

OPISTHOSIPHON (OPISTHOSIPHON) ELEUTHERAENSIS, new species

Shell rather large, elongate-conic, varying from sooty flesh-color to rose-red to pale brown, the early whorls being darker than the rest; the whorls are also marked by slender, interrupted spiral bands of brown. Nuclear whorls decollated. Postnuclear whorls moderately well rounded, very narrowly shouldered, and marked by slender, vertical axial threads, which are very closely spaced, being separated by spaces scarcely as wide as the ribs. At more or less regular intervals, some of these riblets develop into prominent hollow cusps at the summit, which crenulate the suture. The spiral sculpture is obsolete on the spire; a wavy aspect of the ribs merely indicates its presence. Suture moderately constricted. Periphery well rounded. Base moderately long, well rounded, openly umbilicated, and marked by the continuation of the axial riblets and feeble spiral threads that are a little stronger within the umbilicus. The last whorl is not solute. Aperture oval; peristome double, the outer broadly expanded, a little more on the inner lip than the outer, marked by a series of concentric lamellae; at the posterior angle the outer peristome forms a feeble auricle which is adnate to the siphon immediately behind it; inner peristome slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

The close axial ribbing and feeble spiral sculpture combined with the adnate last whorl will readily distinguish this from the other Opisthosiphons.

The species appears confined to the island of Eleuthera. I am recognizing two subspecies as follows:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) ELEUTHERAENSIS

Shell soiled flesh-color	pallidus
Shell rose-color	eleutheraensis

OPISTHOSIPHON (OPISTHOSIPHON) ELEUTHERAENSIS PALLIDUS, new subspecies

Plate 36, Figure 8

Shell varying from soiled flesh-color to pale brown; the early whorls are darker than the rest; the early whorls are also marked by slender interrupted spiral bands of brown, while the peristome is white. Of the very closely spaced axial ribs, 64 occur on the first, 104 on the second, 140 on the third, and 124 on the fourth in the type.

The type (U.S.N.M. No. 355523) was collected by C. C. Allen at Spanish Wells, Eleuthera, Bahamas. It has a little more than 3 whorls remaining and measures: Length, 12.0 mm.; greater diameter, 6.6 mm.; lesser diameter, 5.2 mm.

A series of 17 topotypes from the same source (U.S.N.M. No. 347566) yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	12.1	6.8	5.5
Least	10.2	5.6	4.3
Average	11.1	6.2	4.9

This subspecies in size and in the closeness of ribbing closely resembles *O. (O.) e. eleutheraensis.* It is at once distinguished from that by its pale coloration.

U.S.N.M. No. 468122 contains 10 specimens collected by C. C. Allen at Royal Island, Eleuthera.

OPISTHOSIPHON (OPISTHOSIPHON) ELEUTHERAENSIS ELEUTHERAENSIS, new subspecies

Plate 36, Figure 15

In this race the shell is rose-colored, with inconspicuous spiral bands of brown; the denticles at the summit are flesh-colored and stand in remarkable contrast to the rest of the coloration. The peristome is flesh-colored with a rosy tinge, which is also the color of the interior of the aperture. Postnuclear whorls strongly rounded. The type has 82 axial riblets on the first of the remaining turns, 140 on the second, and 126 on the last.

The type (U.S.N.M. No. 355440) was collected by C. C. Allen on Eleuthera Island, Bahamas. It has a little over 3 whorls and measures: Length, 11.7 mm.; greater diameter, 6.6 mm.; lesser diameter, 5.4 mm.

Four topotypes (U.S.N.M. No. 366201) yield the following additional measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
4+	12.0	6.7	5.5
3+	11.5	6.7	5.1
3+	12.4	6.9	5.4
3+	10.4	5.8	4.6

The bright rose color will at once distinguish this from *O. (O.) e. pallidus.*

OPISTHOSIPHON (OPISTHOSIPHON) TURKENSIS, new species

Plate 37, Figure 2

Shell elongate-ovate, small, pale yellowish, marked with inconspicuous interrupted spiral bands of brown, of which four occur between the summit and the suture and two on the base. Nuclear whorls decollated in all our specimens. Postnuclear whorls inflated, strongly rounded, narrowly shouldered at the summit, and marked by rather distantly spaced, sublamellar axial riblets, of which 36 occur upon the first, 56 on the second, and 60 on the last in the type. These riblets become expanded into moderately large hollow cusps at the summit. The spiral sculpture consists of rather strong threads, which are ill-defined on the first turn, but 12 of them occur on the remaining whorls between the summit and suture. These threads render the axial riblets sharply nodulose and somewhat wavy. Suture narrowly channeled. Periphery well rounded. Base short, somewhat inflated, well rounded, openly umbilicated, and marked by the continuation of the axial ribs and seven spiral threads. Eight additional spiral threads are present within the umbilicus. Aperture very broadly oval, almost subcircular; peristome double, the outer broadly, flaringly expanded, more so on the inner lip than the outer and marked by a series of concentric lines and forming a conspicuous auricle at the posterior angle which is adnate to the breathing siphon; inner peristome exserted and slightly reflected. Operculum typically opisthosiphonid.

The type (U.S.N.M. No. 355444) comes from the H. Prime Collection and was collected on Turks Island. It has a little more than 3 whorls and measures: Length, 8.7 mm.; greater diameter, 5.3 mm.; lesser diameter, 4.4 mm.

U.S.N.M. No. 355445 contains 2 specimens from the same source.

Five additional specimens (U.S.N.M. No. 57605), collected by Rawson, yield the following measurements:

Number of whorls	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
3+	10.7	6.4	5.3
3+	10.8	6.5	5.3
3+	8.4	5.4	4.7
3+	10.5	6.2	5.0
3+	9.5	5.7	4.6

This species resembles most nearly *O. (O.) vaughani,* from which the sharp nodulations will readily differentiate it.

OPISTHOSIPHON (OPISTHOSIPHON) VAUGHANI, new species

1905. *Opisthosolen biformis bahamensis* Dall, The Bahama Islands, Geogr. Soc. Baltimore, p. 42, in part.

Shell elongate-conic, flesh-colored, with a yellowish tinge, usually marked by interrupted spiral bands of brown. The elements composing these bands are arranged in both axial and spiral series. Peristome white or yellowish, the outer may show the brown bands as rays. Nuclear whorls 2, small, well rounded, smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls moderately rounded, rather broadly shouldered at the summit, and marked by rather strong, somewhat wavy, retractively slanting axial riblets. Most of these riblets terminate at the summit in conspicuous, sharp, strong, hollow cusps. The spiral sculpture consists of slender threads as wide as or a little wider than the axial riblets; they render the riblets slightly wavy. Suture strongly channeled. Periphery well rounded. Base short, well rounded, openly umbilicated, and marked by the continuation of the axial riblets and five or six spiral threads, while within the umbilicus more spiral threads are apparent. Aperture broadly oval; peristome double, the outer broadly, flaringly expanded, much wider on the inner lip than on the outer, adnate to the preceding turn on the parietal wall; there is a conspicuous auricle at the posterior angle, which is rather irregular and is attached to the breathing siphon; inner peristome slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

This species is nearest related to *Opisthosiphon (Opisthosiphon) turkensis*, from which it differs in not having the ribs rendered sharply cusped by the spiral threads.

It breaks up into two subspecies, which the following key and descriptions will differentiate:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) VAUGHANI

Shell large, average length 9.9 mm.	vaughani
Shell small, average length less than 7.7 mm.	occidentalis

OPISTHOSIPHON (OPISTHOSIPHON) VAUGHANI VAUGHANI, new subspecies

Plate 37, Figure 1

1905. *Opisthosolen biformis bahamensis* Dall, The Bahama Islands, Geogr. Soc. Baltimore, p. 42, in part.

Of this subspecies we collected thousands of specimens on various parts of Mangrove Cay during the exploration of the Carnegie Institution's expedition to Andros Island in 1912.

Of axial riblets, the type has 58 on the first, 60 on the second, 88 on the third, and 84 on the last of the remaining turns. The slender spiral threads are as wide as or a little wider than the axial riblets. They are not well defined on the first turn; on the second 8 are present and on the third 12.

The type (U.S.N.M. No. 355432) has a little over 3 whorls remaining and measures: Length, 11.2 mm.; greater diameter, 6.3 mm.; lesser diameter, 5.0 mm.

One hundred additional specimens collected by the author yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	11.9	6.5	5.1
Least	8.0	4.9	4.1
Average	9.9	5.6	4.6

U.S.N.M. No. 180676 contains 22 specimens from Mangrove Cay collected by Owen Bryant.

U.S.N.M. No. 270204 contains 292 specimens collected by Vaughan at Rocky Point, 4 miles from the mouth of South Bight, Mangrove Cay.

U.S.N.M. No. 270142 contains 2,438 specimens collected by Bartsch on rocks in an old burnt-over field three-quarters of a mile below the mouth of Lisbon Creek, a quarter of a mile inland, Mangrove Cay.

U.S.N.M. No. 270083 contains 20 specimens collected on rocks by Bartsch along King's Road, Lisbon Point, Mangrove Cay.

U.S.N.M. No. 269852 contains 59 specimens collected by Bartsch three miles up Lisbon Creek a little above Bull Coppice, Linder Cay, Mangrove Cay.

U.S.N.M. No. 269898 contains 7 specimens collected by Bartsch on the banks of Lisbon Creek three-quarters of a mile below its mouth on grass and shrubbery, Mangrove Cay.

U.S.N.M. No. 269795 contains 69 specimens collected by Bartsch on the hills behind the Blue Hole, Mangrove Cay.

U.S.N.M. No. 270013 contains 363 specimens picked from leaf mold by Bartsch from the top of the hill near the Blue Hole, Mangrove Cay.

U.S.N.M. No. 270183 contains 19 specimens from Pott's Cay, collected by Bartsch, South Bight, Mangrove Cay.

U.S.N.M. No. 269841 contains 27 specimens collected by Bartsch on pine coppice opposite Sampson's Brigadine Cay, Mangrove Cay.

U.S.N.M. No. 270156 contains 69 specimens from pines 1 mile from the mouth of Lisbon Creek, Linder Cay, Mangrove Cay.

U.S.N.M. No. 269362 contains 37 specimens collected by Bartsch on pines and palmettos, Bull Coppice, Linder Cay, Mangrove Cay.

U.S.N.M. No. 270080 contains 16 specimens collected under rocks by Bartsch along Kings Road, Lisbon Point, Mangrove Cay.

U.S.N.M. No. 515841 contains 9 specimens collected by William Mann on Mangrove Cay.

U.S.N.M. No. 270242 contains 3 specimens collected by Bartsch under pines and palmettos at Bull Coppice about 3 miles from the mouth of Lisbon Creek, Mangrove Cay.

This subspecies closely resembles the shells I collected on Gun Cay, *Opisthosiphon (Opisthosiphon) vaughani occidentalis,* from which its larger size will distinguish it.

OPISTHOSIPHON (OPISTHOSIPHON) VAUGHANI OCCIDENTALIS, new subspecies

PLATE 37, FIGURE 3

1898. *Ctenopoma bahamense* PILSBRY, Nautilus, vol. 12, p. 26.

This race I collected on Gun Cay, one of the three small islands on the northwestern rim of the Bahama Banks.

There are 50 axial riblets on the first, 72 on the second, and 82 on the last of the remaining turns in the type.There are eight obsolete spiral threads between the summit and the suture and five spiral threads between the periphery and the edge of the umbilicus, while within the umbilicus 8 additional spiral threads are present in the type.

The type (U.S.N.M. No. 355430) has a little more than 3 whorls remaining and measures: Length, 8.7 mm.; greater diameter, 4.5 mm.; lesser diameter, 3.9 mm.

A series of 41 topotypes (U.S.N.M. No. 355431) yields the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	9.7	5.2	4.3
Least	6.5	4.1	3.3
Average	7.7	4.7	3.8

This subspecies is most nearly related to *Opisthosiphon (Opisthosiphon) vaughani vaughani,* from which its much smaller size will readily distinguish it.

OPISTHOSIPHON (OPISTHOSIPHON) BAHAMENSIS (Shuttleworth)

Shell elongate-conic, varying from flesh-color through horn-color to pale brown; the early whorls are frequently darker than the rest; interrupted spiral bands are usually present. Nuclear whorls almost 2, forming a small apex whose whorls are well rounded and smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls moderately strongly rounded, narrowly shouldered at the summit, marked by slender, retractively curved axial ribs, which vary in strength and spacing in the different races; in one subspecies they are stronger than the spiral threads. These riblets terminate in conspicuous cusps at the summit. The spiral sculpture in two of the races is not stronger than the axial ribs. Suture strongly constricted, narrowly channeled. Periphery well rounded. Base well rounded, marked by the continuation of the somewhat enfeebled axial ribs and more closely crowded spiral threads, which are also present on the umbilical wall. Aperture broadly oval; peristome double, the outer broadly expanded, a little wider on the inner and parietal wall than the rest, marked by concentric lamellae forming an inconspicuous auricle which is rendered somewhat irregular by the siphon immediately behind it; the inner peristome is slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

This species occupies Little Abaco, New Providence, and Exuma Islands of the Bahamas. I am recognizing three subspecies.

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) BAHAMENSIS

Axial sculpture stronger than spiral.............................. **abacoellus**
Axial sculpture not stronger than spiral.
  Denticles at the summit exserted........................... **bahamensis**
  Denticles at the summit not exserted........................ **exumaensis**

OPISTHOSIPHON (OPISTHOSIPHON) BAHAMENSIS ABACOELLUS, new subspecies

Plate 37, Figure 4

1905. *Opisthosiphon bahamensis* Dall, Smithsonian Misc. Coll., vol. 47, p. 450, in part.

This subspecies is nearest related to typical *Opisthosiphon (Opisthosiphon) bahamensis bahamensis* (Shuttleworth), differing from this by having the axial sculpture a little stronger and the spiral weaker. The type has 56 axial riblets on the first, 78 on the second, 100 on the third, and 110 on the last of the remaining turns.

The type (U.S.N.M. No. 180684) was collected by Owen Bryant on Little Abaco near Marsh Harbor, Bahamas. It has a little more than 3 whorls and measures: Length, 10.5 mm.; greater diameter, 5.9 mm.; lesser diameter, 4.5 mm.

U.S.N.M. No. 180683, contains 2 other specimens collected near Nields, Little Abaco, one of which has a little over 3 whorls and measures: Length, 10.2 mm.; greater diameter, 5.8 mm.; lesser diameter, 5.1 mm.

OPISTHOSIPHON (OPISTHOSIPHON) BAHAMENSIS BAHAMENSIS (Shuttleworth)

Plate 37, Figures 8, 9

1865. *Ctenopoma bahamense* Shuttleworth, Pfeiffer, Monographia pneumonopomorum viventium, Suppl. 2, p. 115.
1905. *Opisthosiphon bahamensis* Dall, Smithsonian Misc. Coll., vol. 47, p. 450, in part.
1905. *Chondropoma bahamense* Johnson, Nautilus, vol. 19, p. 72.

This, the typical subspecies, appears widely and abundantly distributed over the Island of New Providence. It differs from *Opisthosiphon (Opisthosiphon) bahamensis abacoellus* in having the axial sculpture not stronger than the spiral, and from *O. (O.) b. exumaensis* in having the denticles at the summit exserted.

The specimen figured (U.S.N.M. No. 183380) one of two which come from Nassau, New Providence, has 58 axial ribs on the first, 76 on the second, and 86 on the last of the remaining turns. It has a little more than three whorls remaining and measures: Length, 10.0 mm.; greater diameter, 5.6 mm.; lesser diameter, 4.4 mm.

U.S.N.M. No. 107553 contains 19 specimens from Nassau, received from Thomas Bland.

U.S.N.M. No. 555433 contains 3 specimens from Nassau, from the Smith Collection.

U.S.N.M. No. 57320 contains 16 specimens collected by Rawson at Nassau.

U.S.N.M. No. 355434 contains 2 specimens from Nassau, received from Webb.

U.S.N.M. No. 355435 contains 15 specimens collected by Henderson at Nassau.

U.S.N.M. No. 355436 contains 2 specimens received from Sowerby and Fulton from Nassau.

U.S.N.M. No. 57315 contains 3 specimens from New Providence from the Stearns Collection.

U.S.N.M. No. 180679 contains 3 specimens collected by Owen Bryant at Fort Charlotte, Nassau.

U.S.N.M. No. 104559 contains 25 specimens from Nassau from the Lea Collection.

U.S.N.M. No. 160780 contains 10 specimens collected by Stephenson at Nassau.

U.S.N.M. No. 203628 contains 8 specimens from New Providence from the Ulrich Collection.

U.S.N.M. No. 180695 contains 12 specimens collected by Owen Bryant at Nassau.

U.S.N.M. No. 173185 contains 1 specimen collected by Palmer and Riley on New Providence.

U.S.N.M. No. 180678 contains 5 specimens collected by Owen Bryant near Johnsons, Nassau, New Providence.

U.S.N.M. No. 355437 contains 1 specimen from New Providence from the Smith Collection.

U.S.N.M. No. 180681 contains 5 specimens collected by Owen Bryant on Gladstone's place, Nassau.

U.S.N.M. No. 269711 contains 5 specimens collected by Bartsch near the quarries at Nassau.

U.S.N.M. No. 467102 contains 780 specimens collected by C. C. Allen at Nassau.

U.S.N.M. No. 269205 contains 3 specimens collected by Bartsch at Blue Hill, near Nassau.

U.S.N.M. No. 355526 contains 3 specimens collected by A. B. Bellows at Nassau, received from the George H. Clapp Collection.

U.S.N.M. No. 355527 contains 3 specimens collected by J. Ponsonby at Nassau, received from the George H. Clapp Collection.

U.S.N.M. No. 420171 contains 60 specimens collected by Maynard on the south shore on both sides of Blue Hill, New Providence.

U.S.N.M. No. 124356 contains 7 specimens collected by Nuttall at Nassau.

U.S.N.M. No. 355438 contains 6 specimens from the Ford Collection from New Providence.

U.S.N.M. No. 348678 contains 2 specimens collected by C. C. Allen on the south beach of New Providence.

U.S.N.M. No. 180677 contains a deformed specimen shown on plate 37, figure 9, collected by Owen Bryant on the Grantstown Road, Nassau.

OPISTHOSIPHON (OPISTHOSIPHON) BAHAMENSIS EXUMAENSIS, new subspecies

PLATE 37, FIGURE 11

In strength of sculpture, this race resembles typical *Opisthosiphon (Opisthosiphon) bahamensis bahamensis.* It differs from this, however, in being much more globose and in having the ribs and spiral threads even stronger, and the denticles at the summit not exserted. The type has 60 axial ribs on the first, 80 on the second, and 88 on the last of the remaining turns.

The type (U.S.N.M. No. 355441) was collected by J. J. Brown on Exuma Island, Bahamas. It has a little more than 3 whorls and measures: Length, 10.6 mm.; greater diameter, 6.3 mm.; lesser diameter, 4.8 mm.

Eighteen topotypes (U.S.N.M. No. 53612 and 355528) yield the following measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	11.0	6.0	5.1
Least	9.0	5.0	4.3
Average	10.1	5.7	4.7

OPISTHOSIPHON (OPISTHOSIPHON) PHOENICOPTERUS, new species

Shell small, horn-colored or white. Nuclear whorls 2, well rounded, small. Postnuclear whorls inflated, strongly rounded, and broadly shouldered at the summit, marked by decidedly retractively curved axial ribs, which are rather strong in *Opisthosiphon (Opisthosiphon) p. phoenicopterus* and feeble in *O. (O.) p. nutricius.* The spiral sculpture consists of rather strong threads equaling the riblets in strength in *phoenicopterus* and feeble threads in *nutricius.* Sature channeled. Periphery strongly rounded. Base moderately long, narrowly openly umbilicated, and marked by the continuation of the axial riblets and spiral threads. Additional spiral threads are present on the umbilical wall. Aperture very broadly oval, almost circular; peristome double, the outer broadly expanded, only a trifle wider on the inner lip than the outer, forming a conspicuously reflected auricle at the posterior angle, which is rendered somewhat irregular by the reflected breathing siphon; the inner peristome is moderately exserted and slightly expanded. Operculum typically opisthosiphonid.

This species occupies several of the cays forming the Ragged Island Chain. I am recognizing the following subspecies:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) PHOENICOPTERUS

Axial and spiral sculpture strong..........................	**phoenicopterus**
Axial and spiral sculpture not strong..............................	**nutricius**

OPISTHOSIPHON (OPISTHOSIPHON) PHOENICOPTERUS PHOENICOPTERUS, new subspecies

Plate 37, Figure 10

This subspecies comes from Flamingo Cay and is easily distinguished from *Opisthosiphon (Opisthosiphon) phoenicopterus nutricius* by its much stronger axial and spiral sculpture. The type has 52 axial ribs on the first, 70 on the second, and 78 on the last of the remaining turns. The spiral sculpture consists of rather strong threads equaling the riblets in strength. Of these 8 occur on the first, 10 on the second, and 13 on the last between the summit and suture. The combination of the two elements gives to the whorls a somewhat fenestrated pattern. There are five spiral threads on the base and umbilical wall.

The type (U.S.N.M. No. 127467) was received from the Bland Collection and comes from Flamingo Cay. It has 4 whorls and measures: Length, 9.3 mm.; greater diameter, 5.5 mm.; lesser diameter, 4.4 mm.

OPISTHOSIPHON (OPISTHOSIPHON) PHOENICOPTERUS NUTRICIUS, new subspecies

Plate 37, Figure 13

This subspecies I collected on Nurse Cay, on Knife Cay, and on an unnamed cay west of Frog Cay in the Ragged Island Chain of islands. The feeble axial and spiral sculpture will readily distinguish this from *Opisthosiphon (Opisthosiphon) phoenicopterus phoenicopterus.* The type has 45 axial riblets on first, 62 on the second, 69 on the third, and 67 on the last nine-tenths of the remaining turns. Of spiral threads the first whorl has 8, the second 11, the rest 13 between summit and suture. There are six spiral threads on the base and four on the umbilical wall.

The type (U.S.N.M. No. 391572) comes from Nurse Cay. It has 3.9 whorls remaining and measures: Length, 9.1 mm.; greater diameter, 5.2 mm.; lesser diameter, 4.5 mm.

U.S.N.M. No. 391332 contains 5 specimens from Knife Cay, and U.S. N.M. No. 390237 consists of 3 from an unnamed cay west of Frog Cay.

OPISTHOSIPHON (OPISTHOSIPHON) GOLDINGI, new species

Shell small, elongate-conic, flesh-colored, with interrupted spiral bands of brown. Nuclear whorls 2, small, well rounded, smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls well rounded, narrowly shouldered at the summit, and marked by slender, retractively curved, rather closely spaced axial riblets. Most of these riblets develop into slender cusps at the summit, crenulating the suture. The spiral sculpture is extremely feeble in *Opisthosiphon (Opisthosiphon) goldingi goldingi* and strong in *O. (O.) g. masticensis.* Suture narrowly channeled. Periphery well rounded. Base short, well rounded, openly umbilicated, and marked by the continuation of the slender riblets and spiral threads. There are additional spiral threads in the umbilicus. Aperture almost circular; peristome double, the outer broadly expanded, only a trifle wider on the inner lip than the outer, forming a conspicuous auricle at the posterior angle, which, however, is rendered irregular by the breathing siphon immediately behind it; inner peristome slender, slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (OPISTHOSIPHON) GOLDINGI

Spiral sculpture strong.. **masticensis**
Spiral sculpture feeble.. **goldingi**

OPISTHOSIPHON (OPISTHOSIPHON) GOLDINGI MASTICENSIS, new subspecies

Plate 37, Figure 12

This subspecies differs from *Opisthosiphon (Opisthosiphon) goldingi goldingi* in being larger, with a much greater number and more closely spaced axial ribs and a stronger spiral sculpture. The type has 64 axial riblets on the first, 130 on the second, and 140 on the last of the remaining turns. The spiral sculpture consists of strong, well-defined threads, which equal the riblets in strength. The combination of these two sculptures forms a clathrate surface. Of these spiral threads, 10 occur on the first and 12 on the remaining whorls.

The type (U.S.N.M. No. 355524) was collected by C. C. Allen at Mastic Point, northeastern Andros Island. It has a little more than 3 whorls and measures: Length, 10.4 mm.; greater diameter, 5.9 mm.; lesser diameter, 4.7 mm.

U.S.N.M. No. 359887 contains a topotype from the same source; it has a little more than 4 whorls and measures: Length, 11.6 mm.; greater diameter, 6.2 mm.; lesser diameter, 4.9 mm.

OPISTHOSIPHON (OPISTHOSIPHON) GOLDINGI GOLDINGI, new subspecies

Plate 37, Figure 14

This subspecies differs from *Opisthosiphon (Opisthosiphon) goldingi masticensis* in being uniformly smaller, with the axial ribs much less numerous and less closely spaced and with much weaker spiral sculpture. The type has 70 axial riblets on the first, 86 on the second, and 106 on the last of the remaining turns. The spiral sculpture is extremely feeble and cannot be made out on the first two turns; on the last turn 13 feeble threads may be noted between the summit and the periphery. There are also seven weak spiral threads on the base and five additional threads on the umbilical wall.

The type (U.S.N.M. No. 269405) was collected by Bartsch on Golding Cay off the east entrance to South Bight of Andros Island, Bahamas. It has a little over 3 whorls and measures: Length, 8.7 mm.; greater diameter, 5.1 mm.; lesser diameter, 4.2 mm.

U.S.N.M. No. 269681 contains 32 topotypes from the same source.

OPISTHOSIPHON (OPISTHOSIPHON) DREWI, new species

Plate 37, Figure 15

Shell elongate-conic, flesh-colored, with a yellowish tinge, unicolor or interruptedly spirally banded; the peristome is yellowish white. Nuclear whorls 2, small, well rounded, smooth except for the last portion of the last turn, which shows the beginning of the postnuclear sculpture. Postnuclear whorls strongly rounded, rather strongly, narrowly shouldered at the summit, marked by slightly retractively slanting, somewhat wavy axial riblets, of which 60 occur on the first, 72 on the second, 88 on the third, and 112 on the last of the remaining turns in the type. Most of these riblets form rather strong, acute hollow cusps at the summit. The spiral sculpture consists of slender threads, of which 10 occur on the first, 13 on the second, and 14 on the last turn between the summit and suture. Suture channeled. Periphery well rounded. Base short, well rounded, openly umbilicated, marked by the continuation of the axial riblets and 10 slender spiral threads; 10 additional threads are present within the umbilicus. Aperture broadly oval; peristome double, the outer a little wider on the inner than the outer lip, forming a conspicuous auricle at the posterior angle, which is rendered rather irregular by the siphon immediately behind it to which it is appressed; the outer peristome is marked by slender concentric lines; inner peristome slightly exserted and slightly reflected. Operculum typically opisthosiphonid.

The type (U.S.N.M. No. 270066) was collected by the author on Smith's place on the south side of South Bight at its eastern termination, Andros Island. It has a little over 3 whorls and measures: Length, 11.2 mm.; greater diameter 6.1 mm.; lesser diameter, 5.0 mm.

U.S.N.M. No. 270032 contains 5 topotypes from the same source.

U.S.N.M. No. 269883 contains 42 specimens collected by Bartsch near Smith's place, Andros Island.

U.S.N.M. No. 269569 contains 69 specimens collected by Bartsch on the south side of South Bight on the hill top near Smith's place, mostly under stones.

U.S.N.M. No. 270165 contains 66 specimens collected by Bartsch in the earth about the edge of large stones on the hill top near Smith's place on the south side of South Bight, Andros Island.

U.S.N.M. No. 269393 contains 2 specimens collected by Bartsch from Long Bay District, Andros Island.

I take pleasure in naming this species for G. H. Drew, the eminent British bacteriologist who was a member of the staff of the Carnegie Institution expedition to Andros Island in 1912.

LEPTOPISTHOSIPHON, new subgenus

Opisthosiphons without spiral sculpture on spire, base, or umbilical wall.

Type species: *Opisthosiphon (Leptopisthosiphon) coloni,* new species.

KEY TO THE SPECIES OF LEPTOPISTHOSIPHON

Axial sculpture consisting of strong ribs and fine threads...........	**barbouri**
Axial sculpture consisting of strong ribs only.........................	**coloni**

OPISTHOSIPHON (LEPTOPISTHOSIPHON) BARBOURI Clench

PLATE 35, FIGURE 9

1933. *Opisthosiphon bahamense barbouri* CLENCH, Proc. New England Zool. Club, vol. 13, p. 84, pl. 1, fig. 14.

Decollated shell elongate-ovate, pale brown, with darker, slender, interrupted spiral bands of brown; peristome soiled white, interior of aperture pale brown. The postnuclear whorls are well rounded and marked by moderately retractively slanting axial ribs between which one or more fine axial threads are present. Some of the strong axial ribs become expanded at the summit where they form conspicuous hollow cusps. These are of paler color than the rest of the shell and thus form a very conspicuous pattern. Suture strongly constricted and rendered irregular by cusps at the summit of the whorls. Periphery well rounded. Base moderately long, well rounded, narrowly openly umbilicated, and marked by the continuation of the axial ribs. Aperture obliquely oval; peristome double, the inner slightly exserted and reflected and appressed to the outer; the outer moderately expanded and reflected, thick, broadest on the parietal wall, and partly reflected over the umbilicus. The siphon is thick, its free edge almost touching the channel in the suture behind the lip. Operculum opisthosiphonid.

The specimen described and figured (U.S.N.M. No. 536871) is a paratype received from the Museum of Comparative Zoology. It has 4.2

whorls remaining and measures: Length, 10 mm.; greater diameter, 5 mm.; lesser diameter, 4.2 mm.

This species differs from *Opisthosiphon (Leptopisthosiphon) coloni* in having intercalated axial threads between the heavier ribs. It is also geographically separated from *O. (L.) coloni*, having been collected back of Victoria Hill Settlement, San Salvador.

OPISTHOSIPHON (LEPTOPISTHOSIPHON) COLONI, new species

Shell elongate-conic, flesh-colored, pale horn-colored, or pale brown, unicolor or interruptedly spirally banded; the peristome is flesh-colored or yellowish white. Nuclear whorls a little more than 2, small, well rounded, smooth except for the last portion of the last turn, which shows the beginning of the axial sculpture. Postnuclear whorls moderately rounded, narrowly shouldered at the summit, marked by slender, retractively slanting axial riblets, some of which become expanded at the summit to form slender hollow cusps. Suture almost channeled. Periphery well rounded. Base rather long, well rounded, marked by the continuation of the axial ribs; the umbilicus is usually closed by the reflection of the inner peristome. Aperture broadly oval; peristome double, the outer thickened, reflected and expanded, appressed to the preceding turn on the parietal wall and reflected over the umbilicus which it may partly or completely close. Operculum paucispiral with the nucleus submarginal. The whorls are marked by retractively slanting, slender lamellae which are fused on their inner and outer border, but do not extend to the outer edge of the basal chondroid plate, leaving a narrow band of this showing between the turns, i.e., typically opisthosiphonid.

This species is confined to the Island of San Salvador (Watling Island), where it breaks up into several subspecies as follows:

KEY TO THE SUBSPECIES OF OPISTHOSIPHON (LEPTOPISTHOSIPHON) COLONI

Umbilicus closed by reflected outer peristome.
  Axial ribs on last whorl conspicuous.................................. **henryi**
  Axial ribs on last whorl obsolete...................................... **coloni**
Umbilicus not closed by reflected outer peristome................. **ferdinandi**

OPISTHOSIPHON (LEPTOPISTHOSIPHON) COLONI HENRYI, new subspecies

Plate 37, Figure 6

This subspecies, like typical *Opisthosiphon (Leptopisthosiphon) coloni coloni*, has the umbilicus closed by the reflection of the outer peristome, but it has the axial ribs much more strongly developed than in the typical race, and these are not obsolete on the last whorl.

The type (U.S.N.M. No. 355427) is a complete specimen having 7.0 whorls and measures: Length, 12.6 mm.; greater diameter, 4.7 mm.;

lesser diameter, 4.1 mm. I collected this and 522 other specimens (U.S.N.M. No. 360494) on Bobs Key, in Lake Ferdinand, i.e., the smaller of the two interior lakes, San Salvador.

One hundred additional specimens yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	12.6	5.6	4.5
Least	8.0	3.5	3.2
Average	9.7	4.5	4.0

I take pleasure in naming this race for my son, who assisted me in the exploration of San Salvador.

OPISTHOSIPHON (LEPTOPISTHOSIPHON) COLONI COLONI, new subspecies

PLATE 37, FIGURE 7

This subspecies differs from *Opisthosiphon (Leptopisthosiphon) coloni henryi* in having the axial riblets much less strongly developed, and from *O. (L.) c. ferdinandi* in having the umbilicus closed.

The type (U.S.N.M. No. 355426) was collected by the U. S. Bureau of Fisheries near Riding Rock near Cockburn Town, San Salvador, Bahamas. It has a little over 4 whorls and measures: Length, 10.1 mm.; greater diameter, 4.7 mm.; lesser diameter, 4.0 mm.

U.S.N.M. No. 132966 contains 4 topotypes from the same source.

U.S.N.M. No. 360486 contains 112 specimens collected by P. and H. Bartsch on rocks at Cockburn Town, San Salvador.

A hundred additional specimens, out of a lot of 426 specimens (U.S.N.M. No. 360300), collected by the author and his son at Riding Rock, Cockburn Town, on the seaside shore of the island, yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	10.3	4.9	4.3
Least	6.0	3.0	2.9
Average	8.1	4.1	3.6

OPISTHOSIPHON (LEPTOPISTHOSIPHON) COLONI FERDINANDI, new subspecies

PLATE 37, FIGURE 5

1894. *Chondropoma rawsoni* DALL, Bull. Mus. Comp. Zool., vol. 25, p. 117; not *Chondropoma rawsoni* Pfeiffer, 1867.

This race is differentiated from the other two by having the inner peristome not reflected over the umbilicus so as to cover it, but extended outward as a flap.

The type (U.S.N.M. No. 355428) was collected by the U.S. Bureau of Fisheries on the shores of the Lagoon on Watling Island. This evidently means the smaller of the two lagoons, which I have termed Lake Ferdinand. The type has a little over 4 whorls and measures: Length, 9.8 mm.; greater diameter, 4.8 mm.; lesser diameter, 4.0 mm.

Seventeen additional specimens out of a lot of 64 specimens (U.S.N.M. No. 127480) yield the following average measurements:

	Length	Greater diameter	Lesser diameter
	Mm.	*Mm.*	*Mm.*
Greatest	10.8	4.9	4.2
Least	7.2	3.8	3.3
Average	8.9	4.5	3.8

Genus COLONINA Bartsch

1946. *Colonina* BARTSCH, antea p. 97.

Shell moderately large, ovate, with closely spaced axial riblets, which are rendered vertebrated by the spiral sculpture. The axial ribs are gathered into tufts at the summit and project above this as conspicuous denticles. Aperture oval; peristome double, the outer expanded on the inner lip, slightly so on the outer, or this may be fused with the inner peristome to form a sharp edge. The operculum bears a slightly raised lamella on the inner edge of the whorls from which strongly elevated, retractively slanting, slender lamellae radiate outwardly, fusing at their outer edge into a solid ridge. The calcification of the operculum does not extend to the outer edge of the chondroid basal plate but leaves a small space showing between the turns.

Type species: *Colonina fortunensis,* new species.

KEY TO THE BAHAMAN SPECIES OF COLONINA

Spiral sculpture consisting of strong cords or keels.
  Outer peristome of outer lip expanded.
    Suture broadly channeled .... **bryanti**
    Suture not broadly channeled .... **inaguella**
  Outer peristome of outer lip not expanded.
    Shell large, length more than 15 mm .... **fortunensis**
    Shell small, length less than 12 mm .... **nana**
Spiral sculpture consisting of feeble cords .... **hydii**

COLONINA BRYANTI (Pfeiffer)

Shell elongate-ovate, white. Nuclear whorls about 2, well rounded, smooth. Postnuclear whorls inflated, rather strongly rounded, and marked by strong spiral keels, of which six occur on all the whorls between summit and suture. On the last whorl, however, intercalated cords may make their appearance between the first and second and second and third. In addition to the strong spiral cords, the whorls are marked by very fine sublamellar axial riblets, which render the spiral keels serrated. Suture deeply channeled. Periphery well rounded. Base short, well rounded, openly umbilicated, and marked by eight spiral cords and the continuation of the axial ribs. Within the umbilicus additional spiral cords are present. Aperture oval, slightly auriculated at the posterior angle; peristome double, the outer expanded, more broadly so on the inner lip and less so on the outer lip which is denticulated; inner peristome moderately exserted and reflected. Operculum typically coloninid.

The species comes from the Island of Inagua.

I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF COLONINA BRYANTI

Shell large, length of decollated shell more than 14 mm............	bryanti
Shell small, length of decollated shell less than 10 mm...............	minor

COLONINA BRYANTI BRYANTI (Pfeiffer)

Plate 38, Figure 10

1867. *Ctenopoma bryanti* Pfeiffer, Malak. Blätter, vol. 14, pp. 130–131.
1920. *Chondropoma (Chondropoma) bryanti* Henderson and Bartsch, Proc. U. S. Nat. Mus., vol. 58, p. 62.

This subspecies occupies the outer north coast region of the Island of Inagua and is easily differentiated from the other subspecies by its much greater size.

The type (U.S.N.M. No. 536836) was collected by Bartsch at Northeast Point, Inagua. It has 4.5 whorls remaining and measures: Length, 15.0 mm.; greater diameter, 9.5 mm.; lesser diameter, 8.0 mm.

U.S.N.M. No. 391067 contains 1 topotype from the same source.

I also collected the following specimens:

U.S.N.M. No. 392165, 5 specimens from the west coast south of Northeast Point, east of Salt Lagoon.

U.S.N.M. No. 390224, 3 specimens from Carmichael Point.

U.S.N.M. No. 391709, 4 specimens from flat west of Salt Pond Hill.

U.S.N.M. No. 390692, 21 specimens from flat south of Salt Pond Hill.

U.S.N.M. No. 390257, 32 specimens from Salt Pond Hill.

U.S.N.M. No. 383355, 21 specimens from halfway between Palmetto and Carmichael Points.

U.S.N.M. No. 390718, 1 specimen from the outer beach, north point of Ocean Bight.

U.S.N.M. No. 392170, 18 specimens from the center of Ocean Bight.

COLONINA BRYANTI MINOR, new subspecies

Plate 38, Figure 6

I collected this subspecies on the south coast of Great Inagua. It differs from the typical subspecies in being decidedly smaller.

The type (U.S.N.M. No. 392160) I collected at Conch Shell Point. It has 3.6 whorls remaining and measures: Length, 9.3 mm.; greater diameter, 6.3 mm.; lesser diameter, 5.2 mm.

U.S.N.M. No. 391408 contains 74 topotypes from the same source.

U.S.N.M. No. 390338 contains 9 specimens collected by Bartsch at Maroon Hill.

COLONINA INAGUELLA, new species

Plate 38, Figure 13

Shell rather large, elongate-ovate, white. Nuclear whorls about 2, well rounded, smooth. Postnuclear whorls inflated, well rounded, and marked by strong, elevated, spiral keels, of which eight are present on the first two whorls and intercalated cords between these on the last turn. The axial sculpture consists of exceedingly fine, very closely spaced, slightly retractively curved, sublamellar riblets, which render the spiral cords serrulate. These axial riblets are about as wide as the spaces that separate them. The axial riblets render the summit denticulate. The summit of the whorl is almost appressed to the preceding turn. Suture strongly constricted. Periphery well rounded. Base moderately long, marked by 10 spiral cords, less strong than the keels on the spire. The moderately broad open umbilicus also bears spiral cords. The last whorl is solute for about one-tenth of a turn. Aperture oval, slightly auriculated at the posterior angle; peristome double, the outer moderately broadly expanded, more so on the inner lip, which is reflected to partly cover the umbilicus; it is least expanded on the parietal wall. Operculum typically coloninid.

The type (U.S.N.M. No. 536838) I collected between the hill and west shore at the south end of Little Inagua. It has 3.3 whorls remaining and measures: Length, 15.9 mm.; greater diameter, 10.6 mm.; lesser diameter, 8.8 mm.

U.S.N.M. No. 392361 contains 6 topotypes from the same source.

U.S.N.M. No. 390278 contains 12 specimens which I collected north of South Point on the west side of Little Inagua.

This species differs from typical *Colonina bryanti,* which it resembles in size and sculpture, chiefly by the fact that the suture is not profoundly channeled.

COLONINA FORTUNENSIS, new species

Plate 38, Figure 11

1901. *Ctenopoma hydii* Henderson, Nautilus, vol. 15, p. 86, pl. 5, fig. 5. (Not Weinland.)

Shell elongate-conic, rather large, varying from soiled white to wood brown. Nuclear whorls 2, smooth, strongly rounded, forming a slightly mammillated apex. Postnuclear whorls well rounded, narrowly shouldered at the summit, marked by almost sublamellar, strong, spiral cords, of which six are present between the summit and the periphery, on all but the last whorl, on which there is a lesser intercalated cord between the first and second. The summit itself is slightly swollen to resemble still another cord. The axial sculpture consists of numerous, fine, very closely spaced, quite regular, slightly retractively slanting, sublamellar axial riblets, which render the spiral cords feebly nodulose, the nodules being elongate with their long axis coinciding with the axial ribs, of which 228 occur on the last turn. Some of these axial riblets at irregular intervals become fused at the summit to form moderately strong denticles. Suture moderately constricted. Periphery well rounded. Base moderately long, narrowly umbilicated, and marked by eight spiral threads almost as strong as those on the spire and the continuation of the axial riblets. The last whorl is solute for about one-fifth of a turn and slightly decurrent. Aperture oval; peristome double, forming a moderately constricted auricle at the posterior angle, which shows concentric lines. The outer peristome is broadest on the inner lip, narrow on the parietal wall, and becomes fused with the inner on the outer lip; the inner peristome is very slightly exserted and reflected. Operculum typically coloninid.

The type (U.S.N.M. No. 536839) I collected near Albert Town on Fortune Island, Bahamas. It has 4.3 whorls remaining and measures: Length, 18.0 mm.; greater diameter, 10.3 mm.; lesser diameter, 8.9 mm.

U.S.N.M. No. 391522 contains 72 topotypes from the same source.

U.S.N.M. No. 390742 contains 81 specimens collected by Bartsch on the south side of Fortune Island near the upper landing.

U.S.N.M. No. 391750 contains 23 specimens collected by Bartsch at Walker's Bay.

U.S.N.M. No. 392360 contains 5 specimens collected by Bartsch on the south side of the lagoon near Albert Town, Fortune Island.

U.S.N.M. No. 391745 contains 26 specimens collected by Bartsch on the east side of the lagoon.

U.S.N.M. No. 168325 contains 14 specimens collected by Henderson and Simpson on Fortune Island.

This species can readily be distinguished from *C. nana* by its larger size.

COLONINA NANA, new species

PLATE 38, FIGURE 12

Shell rather small, ovoid. The nuclear whorls are decollated in all our specimens. The postnuclear whorls are strongly rounded and marked by sublamellar spiral cords, of which eight are present on all the whorls between the summit and the periphery. The axial sculpture consists of numerous, slender, sublamellar, closely spaced riblets, which render the axial ribs weakly nodulose at their junction, the nodules being elongate with their long axis coinciding with the axial sculpture. Of these riblets 256 occur on the last whorl. The axial riblets render the summit of the whorls minutely denticulated. Suture narrowly deeply channeled. Periphery inflated, strongly rounded. Base rather short, inflated, strongly rounded and marked by eight spiral cords, which are a little less strong than those on the spire. The umbilical wall is also marked by spiral cords. Both of them are crossed by the continuation of the axial riblets. The last whorl is slightly solute. Aperture broadly oval with a small auricle at the posterior angle; peristome double, the outer quite broadly expanded on the inner lip, narrowly so toward the parietal wall, the upper portion of which is not expanded. On the outer lip the inner and outer peristome becomes fused. On the inner lip and at the posterior angle, the inner peristome is exserted and slightly reflected. Operculum typically coloninid.

The type (U.S.N.M. No. 536840) I collected on the east side of the western Plana Island, Bahama Island. It has almost 4 whorls remaining and measures: Length, 11.7 mm.; greater diameter, 7.4 mm.; lesser diameter, 6.1 mm.

U.S.N.M. No. 390888 contains 7 topotypes.

Its small size will readily distinguish this species from *Colonina fortunensis.*

COLONINA HYDII (Weinland)

PLATE 38, FIGURES 1–3

1862. *Cyclostomus hydii* WEINLAND, Malakazool. Blätter, vol. 9, p. 90.
?1863. *Chondropoma rude* REEVE, Conchologia iconica, vol. 14, pl. 4, No. 28.
1865. *Cyclostoma hydii* PFEIFFER, Monographia pneumonopomorum viventium, Suppl. 2, pp. 131–132.
1898. *Colobostylus hydii* KOBELT and MÖLLENDORFF, Nachr. deutschen malak. Ges., vol. 30, p. 192.

Shell rather large, truncated, elongate-ovate, varying from soiled white to pale brown. Nuclear whorls a little more than 2, well rounded, smooth, forming a rather well elevated apex. The early postnuclear whorls increase regularly in size, and if the shell were complete they would give to this a broadly elongate-conic outline. The postnuclear whorls are marked by low, rounded, spiral cords, of which 8 are present on the first two turns, 10 on the third, and 12 on the last between the summit and the periphery. The axial sculpture consists of slender, sublamellar, rather closely spaced riblets, which render the spiral threads weakly nodulose, the nodules being slightly elongate with their long axis corresponding with the axial sculpture. These riblets show growth stages, that is, a number of stronger are followed by weaker and more closely spaced elements. At the summit of the whorls a number of these riblets fuse to form rather irregular, conspicuous denticles. Of these axial riblets, 261 occur on the last turn. Suture moderately constricted. Periphery inflated, strongly rounded. Base moderately long, well rounded, and marked by 11 spiral cords, which are as strong as those on the spire. Four additional spiral cords of equal strength are apparent on the umbilical wall. The base and umbilical wall also bear the continuation of the axial riblets. The last whorl may be adnate or slightly solute. Even when adnate there is a conspicuous portion of the outside of the parietal wall that is reflected, and there is a very strong carina at the posterior angle, marked by the denticulated riblets. Aperture oval with a moderately large auricle at the posterior angle; peristome double, the outer moderately broadly expanded on the inner lip, narrowly so on the parietal wall, and fused with the inner peristome on the outer lip; the inner peristome is reflected and appressed to the outer. Operculum typically coloninid.

The specimen described and figured (U.S.N.M. No. 425687) is one of Weinland's original lot received from the Senckenburg Museum. It has 4.2 whorls remaining and measures: Length, 17.8 mm.; greater diameter, 10.8 mm.; lesser diameter, 9.3 mm. This specimen comes from Crooked Island. The nuclear whorls were described from the Acklins Island specimens.

Another specimen (U.S.N.M. No. 394126) collected by me, comes from French Wells, Crooked Island.

I also collected a large series of specimens on Acklins Island, of which Crooked Island forms almost a continuation. These agree with typical *C. hydii* as far as sculpture is concerned. The *hydii* topotype, however, has the last whorl adnate, while in almost all the specimens from Acklins Island the last whorl is partly solute. If a larger series of specimens from Crooked Island should prove that this is a constant character, it will become desirable to bestow upon it a distinctive name.

On Acklins Island I gathered the following specimens:

U.S.N.M. No. 392372, 158 specimens from Spring Point.

U.S.N.M. No. 392359, 47 specimens also from Spring Point.

U.S.N.M. No. 392129, 6 specimens from Mason Bay, between Snug Corner and Salt Lagoon.

U.S.N.M. No. 391583, 17 specimens from the western shore of Salt Lagoon.

U.S.N.M. No. 391519, 5 specimens from Jamaica Bay.

U.S.N.M. No. 390874, 53 specimens from Pinnacle Point.

U.S.N.M. No. 392212, 4 specimens from Cornucopia.

U.S.N.M. No. 394131, 16 specimens from Delectable.

U.S.N.M. No. 393199, 23 specimens from Indian Wells.

U.S.N.M. No. 390912, 6 specimens from Jamaica Bay.

U.S.N.M. No. 393338, 41 specimens from hills inland from Cornucopia.

This species appears to be a sexually dimorphic form. While we have not dissected specimens, I believe that the small individuals represent the male. There are, however, intergrading individuals between the large and small. I am also figuring a large and a small specimen from Acklins Island.

Subfamily ANNULARIINAE Henderson and Bartsch

1920. Annularinae HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 71.

Shell ranging in form from depressed helicoid to elongate-conic. The axial sculpture may be almost obsolete or it may consist of strong ribs or many slender lamellae, which may or may not be gathered into tufts at the summit. The spiral sculpture may be absent, confined to the umbilicus, or cover spire and base. In strength the spiral sculpture varies from fine threads to strong cords. Breathing devices are present in some groups and absent in others. They range from a mere notch or slit puncture to a pore with external siphon. The operculum may be flat or convex on the outside, provided with a calcified lamella, which rises from the inner edge of the whorls. This lamella may be vertically placed upon the basal plate or it may be obliquely situated or reflected to parallel the basal plate. It may be almost smooth or ribbed.

Type genus: *Annularia* Schumacher.

COLONELLA, new genus

Shell small, elongate-conic, when truncated subcylindric, marked by slender axial riblets, which are gathered into tufts at the summit that project as conspicuous denticles above the suture. The spiral sculpture consists of weak threads which may or may not crenulate the axial ribs. Last whorl solute for part of a turn. Base openly umbilicated. Aperture oval; peristome double, the outer moderately expanded forming an auricle at the posterior angle. Operculum with a slender, well raised outwardly reflected lamella which becomes much thickened on the last turn and slopingly downward curved toward the chondroid basal plate and marked by rather strong, retractively curved riblets.

Type species: *Chondropoma mariguanensis* Clench = *Colonella mariguanensis* (Clench).

KEY TO THE SPECIES OF COLONELLA

Last whorl solute.
  Denticles at the summit consisting of fused axial riblets.. **mariguanensis**
  Denticles at the summit not consisting of fused axial riblets.. **acklinsensis**
Last whorl not solute.. **watlingensis**

COLONELLA MARIGUANENSIS (Clench)

Shell small, almost subcylindric, varying from unicolor horn-color to purplish chestnut-color. The shells may be unicolor or banded. Nuclear whorls almost 2, smooth except for microscopic granulations, forming a slightly mammillated apex. The postnuclear whorls are marked by slightly retractive, slender axial riblets, which vary somewhat in strength and spacing. At irregular intervals several of these riblets are gathered into hollow tufts at the summit. Suture strongly constricted. Periphery well rounded. Base moderately widely openly umbilicated, marked by the continuation of the axial ribs and several low, rounded, spiral threads on the umbilical wall. Last whorl solute for about one-fifth of a turn. Aperture broadly oval; peristome double, the outer broadly expanded, forming a rather conspicuous auricle at the posterior angle, of about the same width except on the parietal wall, where it is much narrower. The outer peristome is marked by concentric laminae, which are best shown on the auricle. The inner peristome is rather strongly exserted and slightly reflected. The operculum is typically colonellid.

I am recognizing two subspecies, which the following key will help to differentiate:

KEY TO THE SUBSPECIES OF COLONELLA MARIGUANENSIS

Axial ribs of the early whorls rather distantly spaced.........	**mariguanensis**
Axial ribs of the early whorls rather closely spaced..............	**planaensis**

COLONELLA MARIGUANENSIS MARIGUANENSIS (Clench)

Plate 38, Figure 4

1937. *Chondropoma mariguanense* Clench, Proc. New England Zool. Club, vol. 16, p. 66, pl. 3, fig. 2.

This subspecies I collected in very large numbers on Abraham Hill, Mariguana Island, Bahama, and also in Betsy Bay and at John Dean's place on the same island.

The specimen figured (U.S.N.M. No. 536841) is one received from Mr. Clench's type lot also collected at Abraham Hill. It has 4.4 whorls remaining and measures: Length, 7.0 mm.; greater diameter, 3.1 mm.

U.S.N.M. No. 391026 contains 1,448 topotypes from the same source.

U.S.N.M. No. 391622 contains 89 specimens collected by Bartsch at Betsy Bay, Mariguana Island.

U.S.N.M. No. 391766 contains 1 specimen from John Dean's place, west side of Mariguana Island, collected by Bartsch.

This is very closely related to *C. m. planaensis,* but it can be differentiated from that by having the denticles at the summit not quite as strong, and in having the axial ribs of the early whorls much more distantly spaced.

COLONELLA MARIGUANENSIS PLANAENSIS, new subspecies

Plate 38, Figure 5

This subspecies I collected in rather large numbers on the western of the two Plana Islands, Bahama. It is closely related to *Colonina mariguanensis mariguanensis,* but differs from it in having the axial riblets at the summit much more pronounced, and in having the axial riblets of the early whorls much more closely spaced.

The type (U.S.N.M. No. 536842) comes from the east side of Plana Island. It has 4.4 whorls remaining and measures: Length, 6.3 mm.; greater diameter, 2.9 mm.

U.S.N.M. No. 390893 contains 1,586 topotypes from the same source.

U.S.N.M. No. 391757 contains 137 specimens collected by Bartsch on Western Plana Island.

COLONELLA ACKLINSENSIS, new species

PLATE 38, FIGURE 8

Shell small, almost cylindroconic. Nuclear whorls 2, well rounded, smooth, forming a slightly mammillated apex. Postnuclear whorls with strongly constricted suture, which gives them a rather rounded aspect. The postnuclear whorls are crossed by rather closely spaced, moderately elevated axial riblets, which vary somewhat in strength and also in spacing. Some of these axial riblets become expanded at the summit into a hollow denticle. Periphery strongly rounded. Base narrowly openly umbilicated, marked by a continuation of the axial ribs which extend over the umbilical wall, which also shows an indication of several obsolete spiral threads. Last whorl solute for a fifth of a turn. Aperture subcircular; peristome double, the inner slightly reflected; the outer moderately broadly expanded, widest at the posterior angle, a little narrower on the rest of the outer, basal and columellar lip, narrowest on the parietal wall. Operculum typically colonellid.

The type (U.S.N.M. No. 536843) was collected by Bartsch at Pinnacle Point, Acklins Island. It has 3.3 whorls remaining and measures: Length, 8.2 mm.; greater diameter, 3.7 mm.

U.S.N.M. No. 392229 contains 9 topotypes from the same source.

U.S.N.M. No. 393339 contains 1 specimen collected by Bartsch from the hill inland from Cornucopia, Acklins Island.

This species is easily distinguished from *Colonina mariguanensis* by having the denticles at the summit produced by a mere expansion of single ribs. In *C. mariguanensis* they are the fusion product of several riblets. Both of these species have the last whorl solute; in *C. watlingensis* the last whorl is not solute.

COLONELLA WATLINGENSIS (Dall)

Shell small, almost cylindroconic, varying from flesh-color to chestnut-brown, unicolor, or variously banded; peristome always pale, even in the darkest specimens. Nuclear whorls 2, well rounded, smooth, forming a rather conspicuous apex. Postnuclear whorls moderately strongly rounded, marked by retractively slanting axial riblets, some of which become expanded into hollow cusps at the summit, or else two or more may fuse to form a hollow cusp. The spiral sculpture consists of rather distantly spaced, not very strongly developed, low, broad threads, which give to the axial riblets a slightly wavy outline and feeble tuberculation. Suture well constricted. Periphery well rounded. Base moderately long, well rounded, narrowly openly umbilicated, marked by the continuation of the axial riblets and spiral threads of about the same strength as those on the spire. These spiral threads also render the axial riblets nodulose, the nodules being a little stronger on the base than on the spire. Aperture oval; peristome double, the outer moderately, broadly expanded, thick, marked by feebly developed, concentric laminae; the inner slightly exserted, decidedly reflected and fused with the outer for the major portion. Operculum typically colonellid.

This species comes from San Salvador, where two subspecies appear to be present, one of which occupies the portion bordering the inner lagoon, while the other seems restricted to the beach in and about Cockburn Town.

KEY TO THE SUBSPECIES OF COLONELLA WATLINGENSIS

Denticles at the summit consisting of fused axial riblets........ **watlingensis**
Denticles at the summit not consisting of fused axial riblets......... **henryi**

COLONELLA WATLINGENSIS WATLINGENSIS (Dall)

PLATE 38, FIGURE 7

1894. *Chondropoma watlingense* DALL, Bull. Mus. Comp. Zool., vol. 25, p. 118, fig. 6.
1920. *Chondropoma (Chondropomorus) watlingense* HENDERSON and BARTSCH, Proc. U. S. Nat. Mus., vol. 58, p. 61.

This subspecies occupies the lagoon area of San Salvador, or Watling, Island. It differs from *C. w. henryi* in having the denticles at the summit of the whorls usually produced by the fusion of a number of the axial riblets. The shell is also a little more elongate.

The type (U.S.N.M. No. 355930) comes from the shores of Lake Ferdinand, the smaller of the two lagoons within the island. It has a little more than 4 whorls remaining and measures: Length, 8.1 mm.; greater diameter, 3.8 mm.

U.S.N.M. No. 127499 contains 4 topotypes from the same source.

COLONELLA WATLINGENSIS HENRYI, new subspecies

PLATE 38, FIGURE 9

This subspecies was collected in large numbers by the author and his son, Henry, for whom it is named, on the seaside shores about Cockburn Town, San Salvador (Watling Island).

It is easily distinguished from the typical race by the stronger axial ribs, which become expanded into hollow denticles at the summit and therefore are not the fusion product of several of them. The race also seems to have narrower whorls and appears of general darker coloration.

The type (U.S.N.M. No. 366526) comes from Cockburn Town. It has a little over 3 whorls and measures: Length, 7.3 mm.; greater diameter, 3.4 mm.

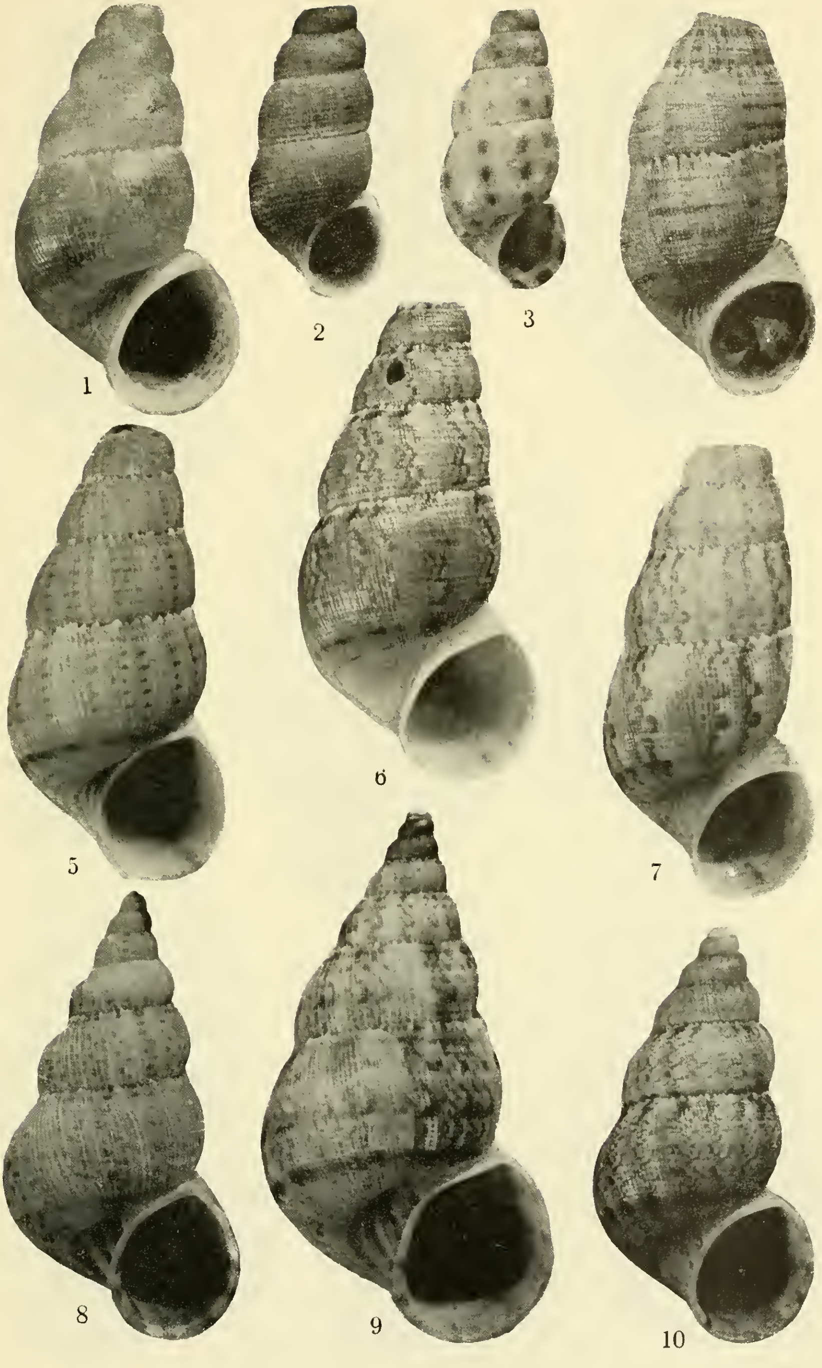
U.S.N.M. No. 360487 contains 47 topotypes from the same source.

U.S.N.M. No. 360301 contains 211 specimens collected by H. and P. Bartsch at Riding Rock, San Salvador.

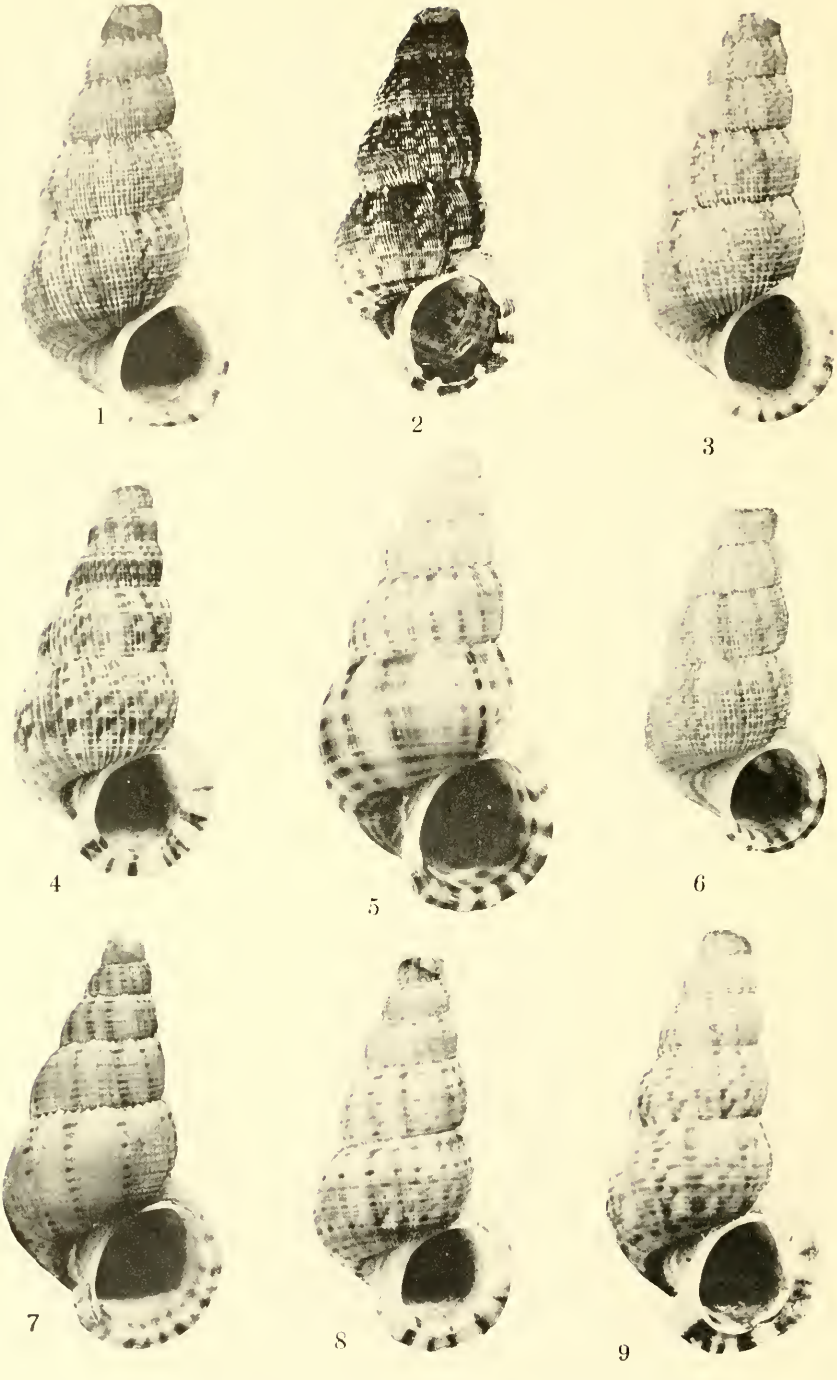
U.S.N.M. No. 360333 contains 7 specimens collected by H. and P. Bartsch from North Road, San Salvador.

PLATES

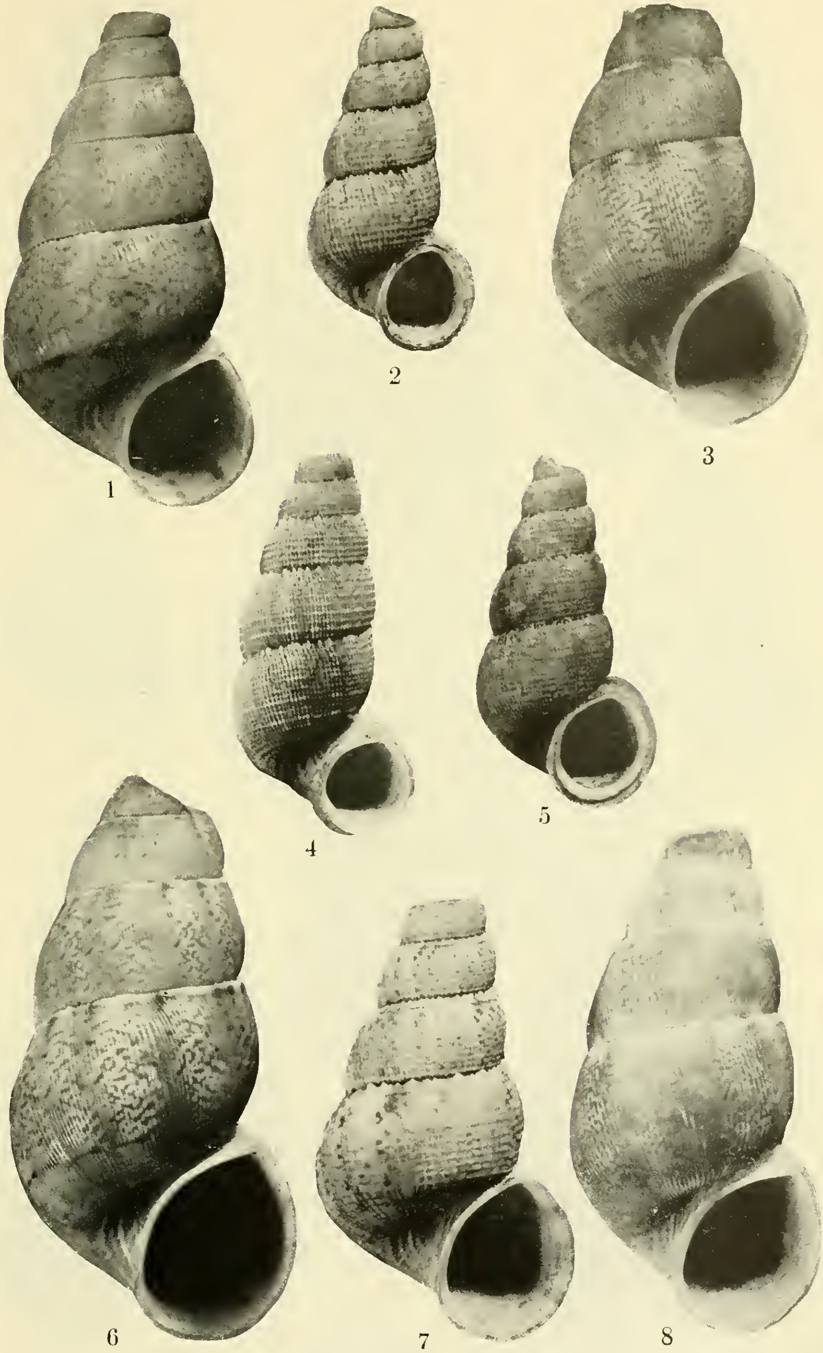
All figures are four times natural size except those on plate 18, which are twice natural size.



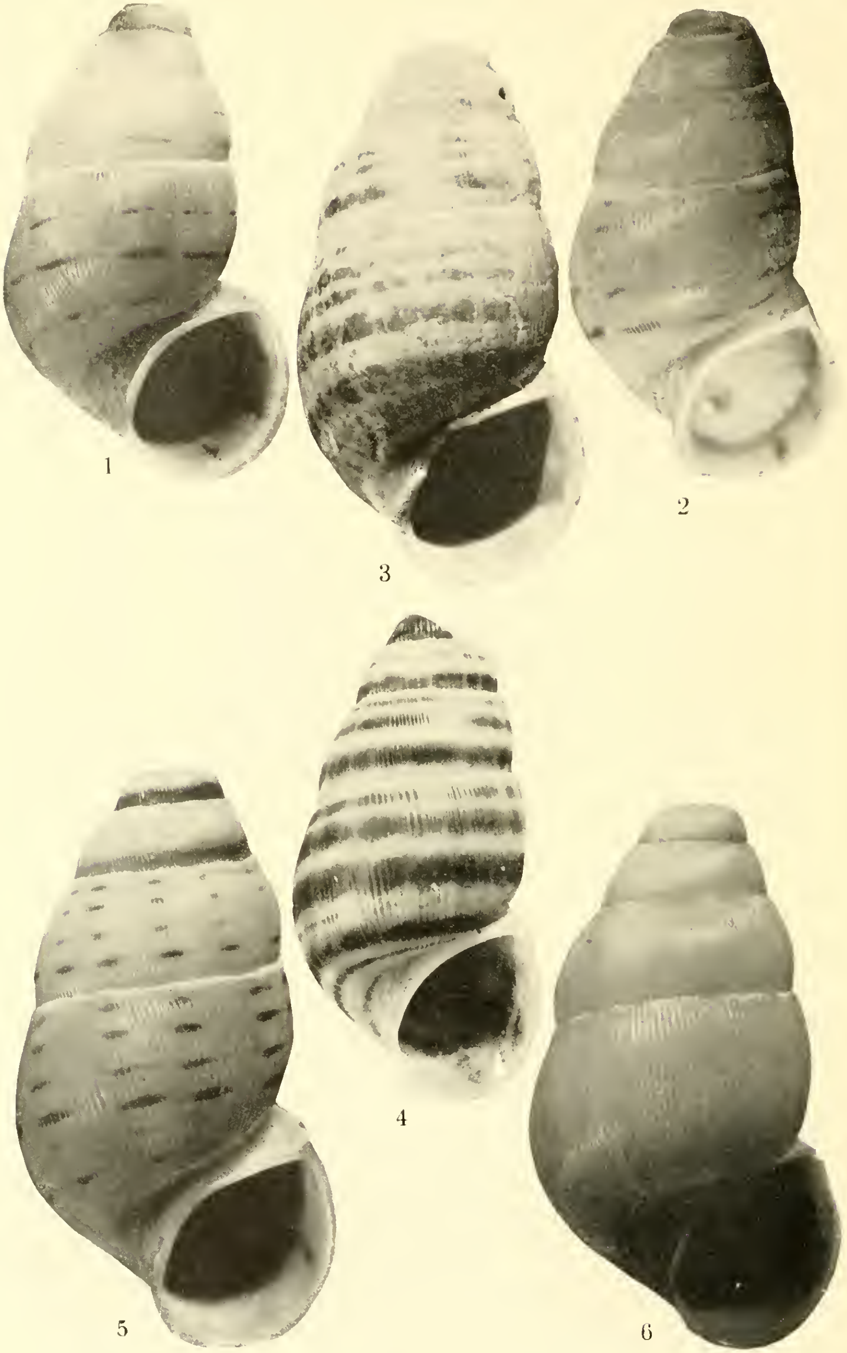
1, *Chondropoma* (*Chondropomorus*) *hemiotum* (Pfeiffer); 2, *C.* (*C.*) *simplex* (Pfeiffer); 3, *C.* (*Wetmorepoma*) *wetmorei* Bartsch; 4, *C.* (*Chondropomorus*) *olssoni* Pilsbry; 5, *C.* (*C.*) *moronense,* new species; 6, *C.* (*C.*) *pilsbryi pilsbryi,* new subspecies; 7, *C.* (*C.*) *p. nonuni,* new subspecies; 8, *C.* (*C.*) *salleanum cookei,* new subspecies; 9, *C.* (*C.*) *s. salleanum* (Pfeiffer); 10, *C.* (*C.*) *litturatum* (Pfeiffer).



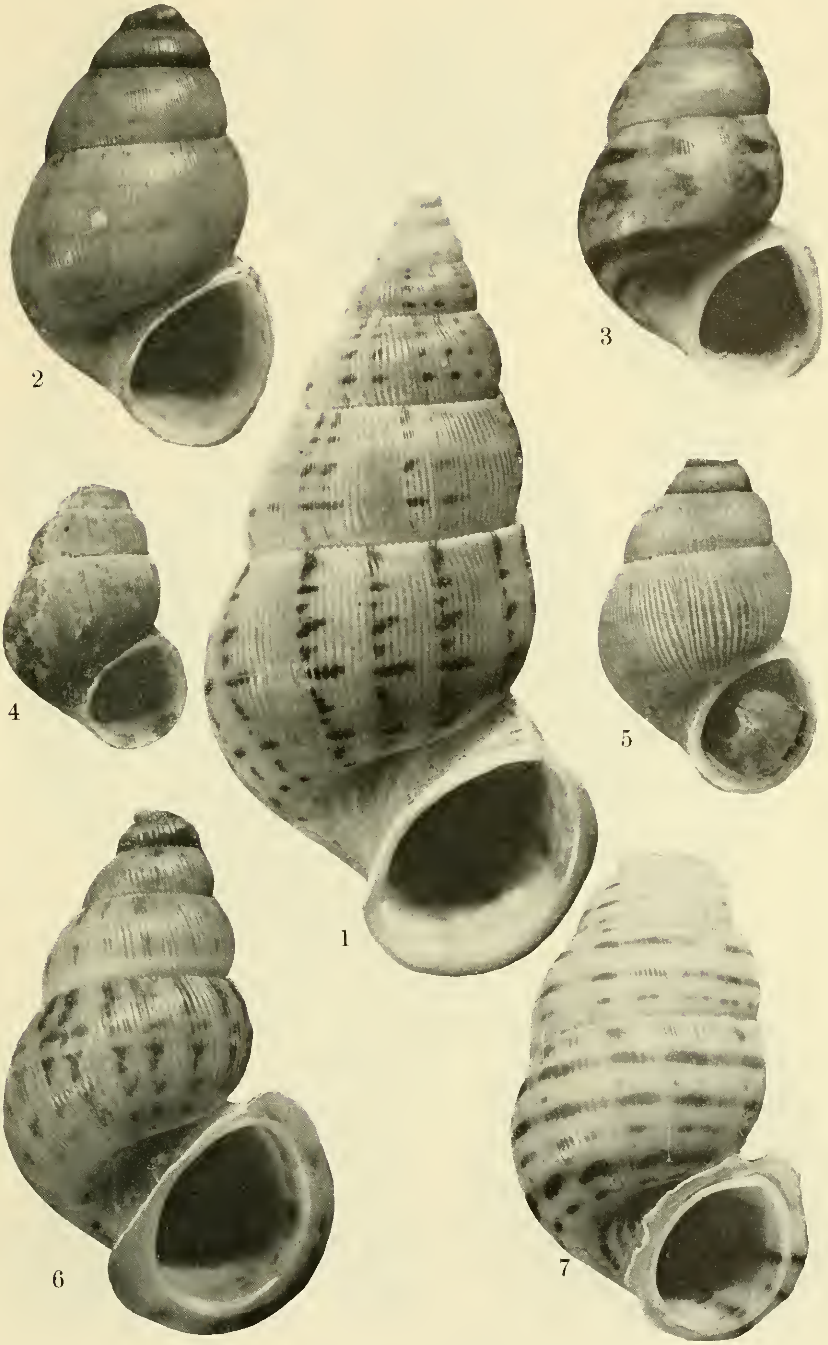
1, *Chondropoma* (*Chondropomorus*) *petitianum hispaniolae* Clench and Aguayo; 2, *C.* (*C.*) *p. petitianum* (Pfeiffer); 3, *C.* (*C.*) *p. dessalinesi*, new subspecies; 4, *C.* (*C.*) *p. costatum* Weinland; 5, *C.* (*C.*) *gnote tuobi*, new subspecies; 6, *C.* (*C.*) *petitianum dominicum*, new subspecies; 7, *C.* (*C.*) *gnote enneryense*, new subspecies; 8, *C.* (*C.*) *g. kriegeri*, new subspecies; 9, *C.* (*C.*) *g. gnote* Pilsbry.



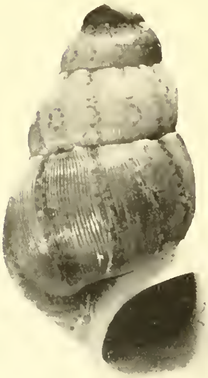
1, *Chondropoma (Chondropomium) vermiculatum vermiculatum,* new subspecies; 2, *C. (Chondropomorus) caricae caricae* Pfeiffer; 3, *C. (Chondropomium) vermiculatum domingoense,* new subspecies; 4, *C. (Chondropomorus) caricae sosuense,* new subspecies; 5, *C. (C.) c. navarretense,* new subspecies; 6, *C. (Chondropomium) vermiculatum sallei,* new subspecies; 7, *C. (Chondropomorus) coroni,* new species; 8, *C. (Chondropomium) vermiculatum nubi um,* new subspecies.



1, *Chondropoma* (*Chondropomium*) *swiftii swiftii* (Shuttleworth); 2, same (type); 3, *C.* (*C.*) *s. barahonense*, new subspecies; 4, *C.* (*C.*) *s. saturatum*, new subspecies; 5, *C.* (*C.*) *s. weinlandi* Pfeiffer; 6, *C.* (*C.*) *s. azuense*, new subspecies.



1, *Chondropoma* (*Chondropomium*) *superbum* Henderson and Simpson; 2, *C.* (*C.*) *eusarcum puertoplatense*, new subspecies; 3, *C.* (*C.*) *beatense* Clench; 4, *C.* (*C.*) *eusarcum catalinitense*, new subspecies; 5, *C.* (*C.*) *e. eusarcum* (Pfeiffer); 6, *C.* (*C.*) *inaequilabrum*, new species; 7, *C.* (*C.*) *ignotum*, new species.



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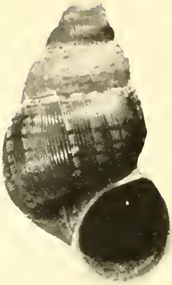

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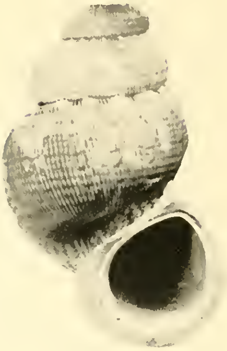

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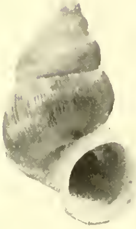

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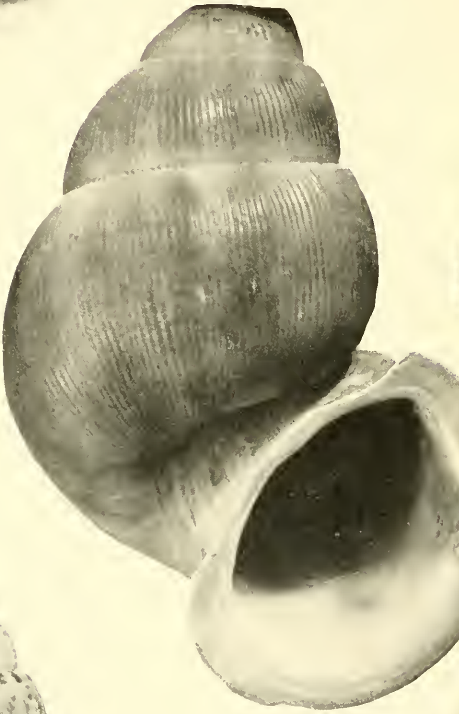

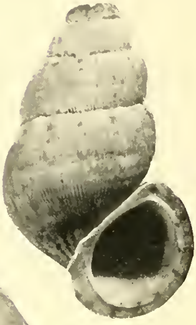

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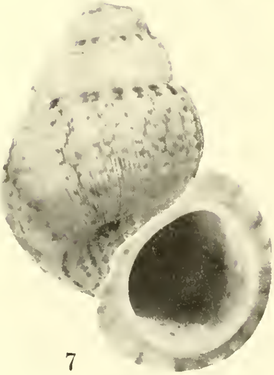

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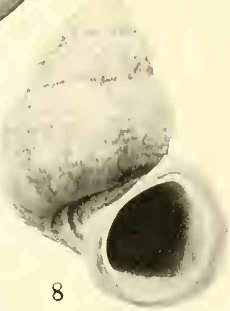

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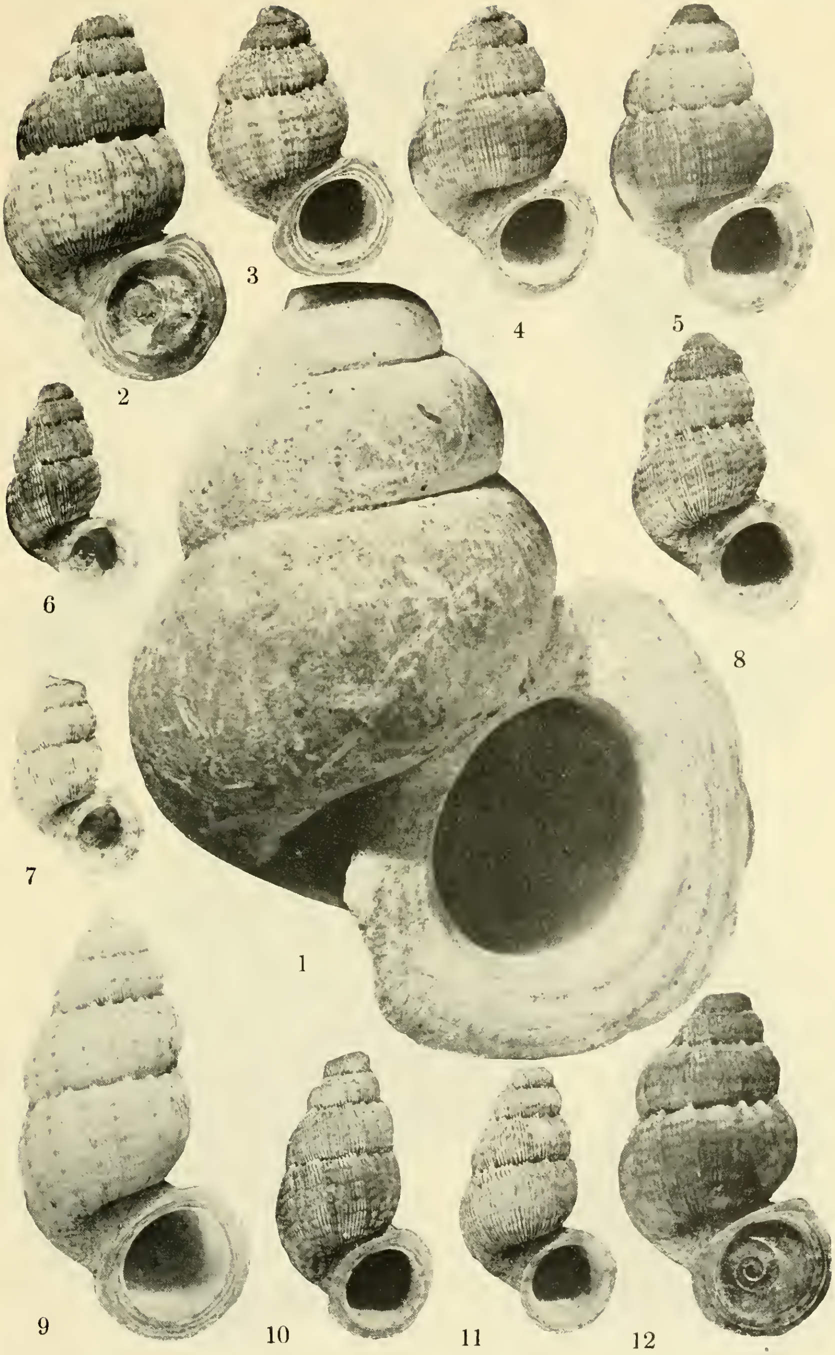
1, *Chondropoma (Chondropomium) asymmetricum* Pilsbry; 2, *C. (C.) gimbiense saltrouense*, new subspecies; 3, *C. (C.) g. gimbiense*, new subspecies; 4, *C. (Articulipoma) cieloense*, new species; 5, *C. (A.) naniculum*, new species; 6, *C. (A.) xenicum* Pilsbry; 7, *C. (A.) caroli caroli*, new subspecies; 8, *C. (A.) c. bodariense*, new subspecies.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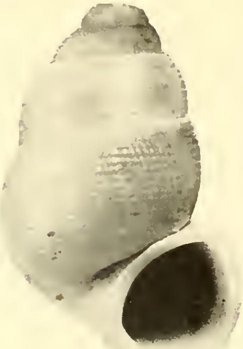
1, *Chondropoma* (*Chondropomella*) *platychilum* (Pfeiffer); 2-11, *C.* (*Articulipoma*) *fluxum*, new species.



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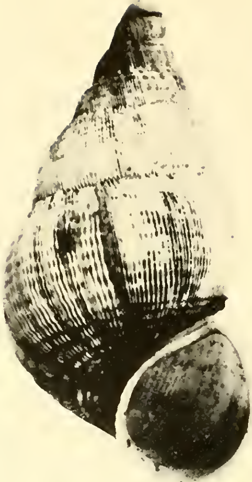

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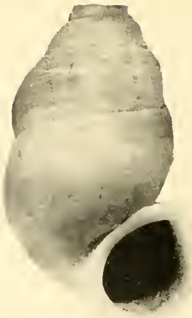

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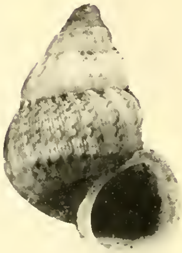

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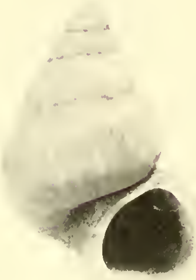

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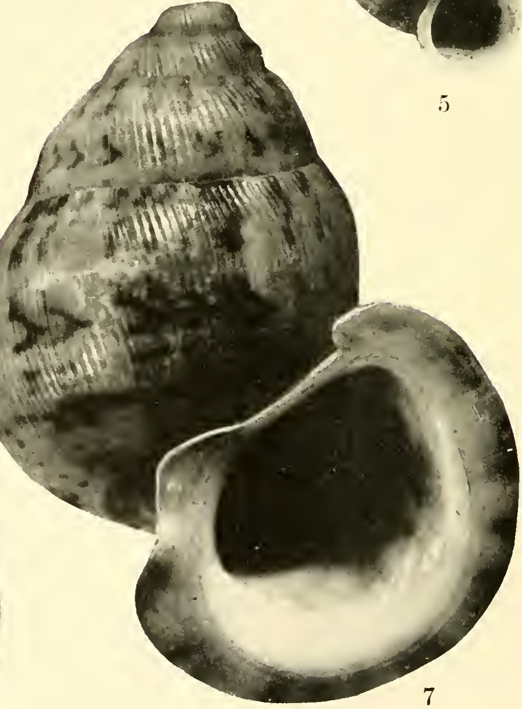

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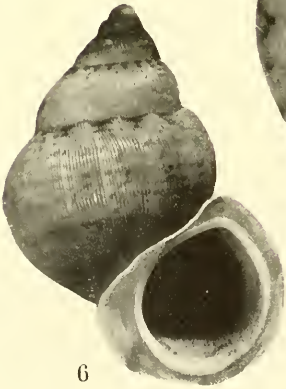

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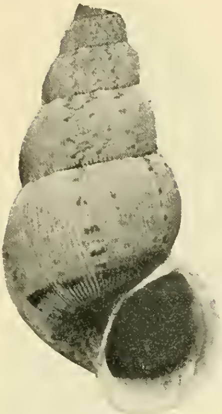
1, *Chondropoma* (*Chondropoma*) *blanchardi marci*, new subspecies; 2, *C.* (*C.*) *b. blanchardi*, new subspecies; 3, *C.* (*Articulipoma*) *lowcanum* (Pfeiffer); 4, *C.* (*A.*) *russelli tesbori*, new subspecies; 5, *C.* (*A.*) *r. caibai*, new subspecies; 6, *C.* (*A.*) *r. russelli*, new subspecies; 7, *C.* (*Chondropomella*) *magnificum* ('Salle' Pfeiffer).



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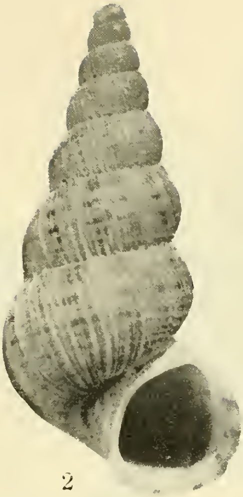

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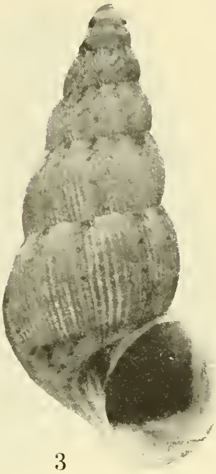

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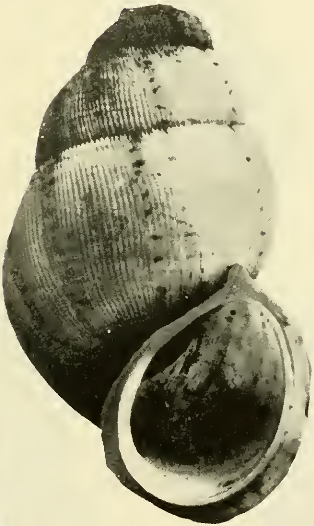

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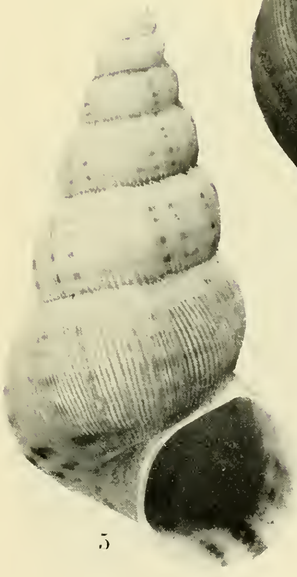

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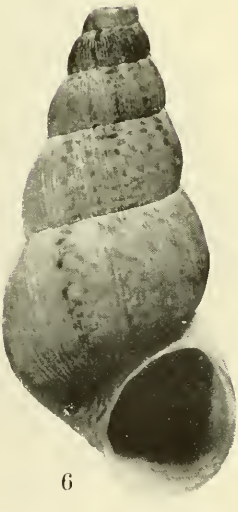

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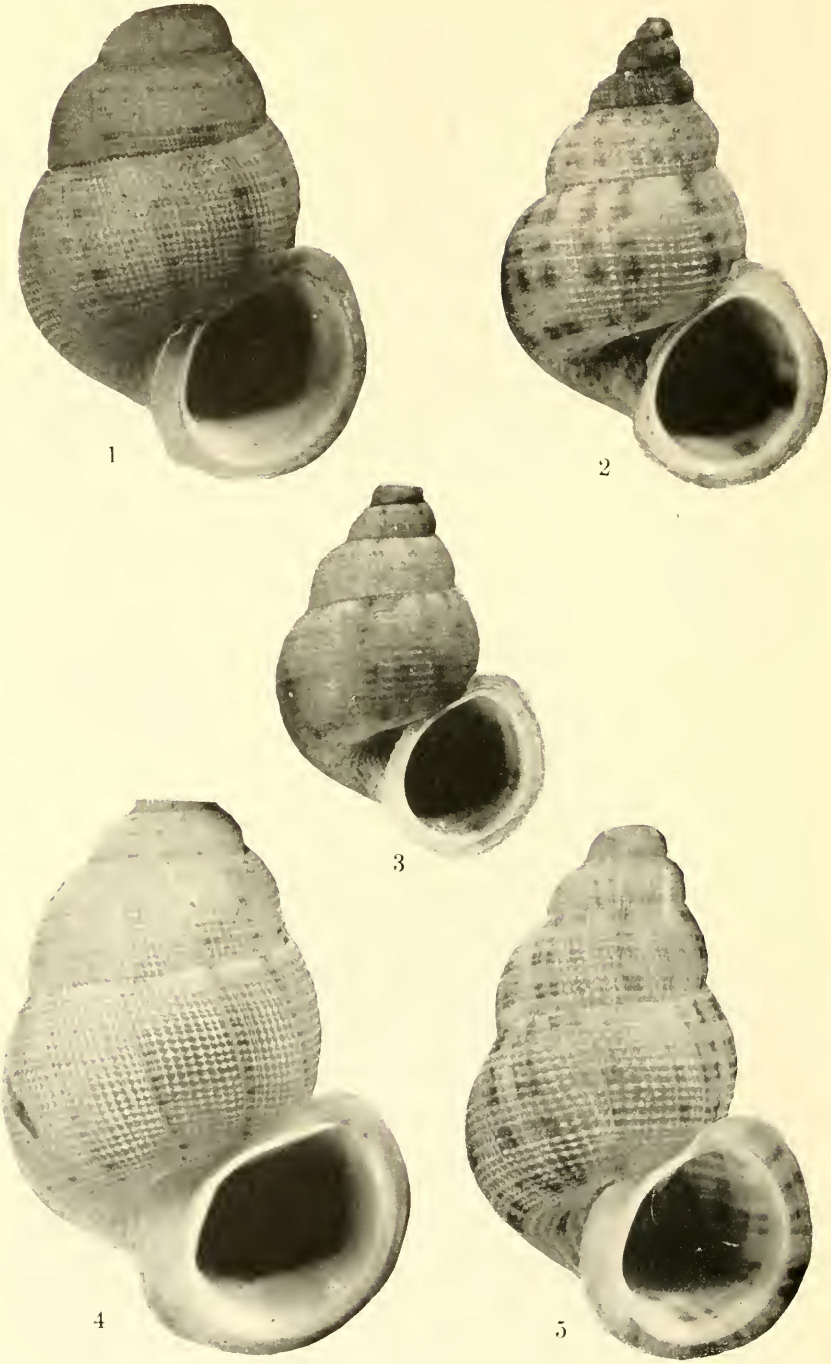
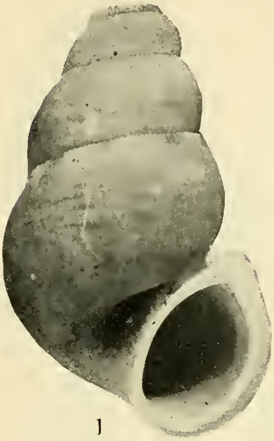
1, *Chondropoma (Lindenipoma) lindenianum goanni,* new subspecies; 2, *C. (Chondropoma) annae,* new species; 3, *C. (Lindenipoma) lindenianum lindenianum* Weinland; 4, *C. (Chondropoma) blandum* (Pfeiffer); 5, *C. (Lindenipoma) kazikum,* new species; 6, *C. (L.) lindenianum manni* Clench and Aguayo.



1, *Chondropoma* (*Chondropoma gonavense arcahaiense*, new subspecies; 2, *C.* (*C.*) *manielense montivagum*, new subspecies; 3, *C.* (*C.*) *m. manielense*, new subspecies; 4, *C.* (*C.*) *gonavense finitimum*, new subspecies; 5, *C.* (*C.*) *g. gonavense*, new subspecies.



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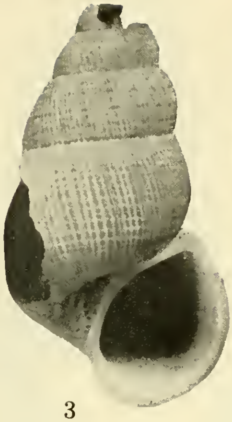

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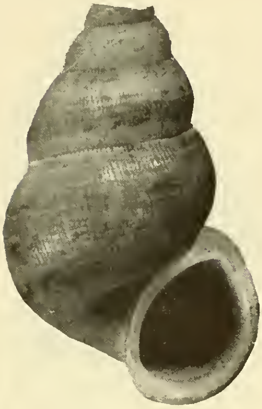

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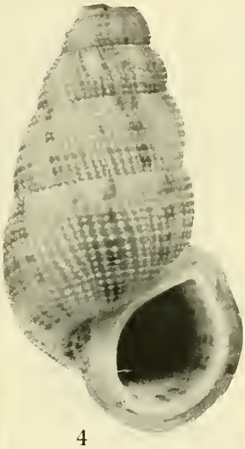

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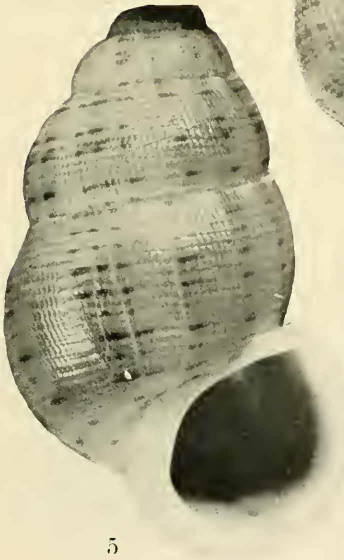

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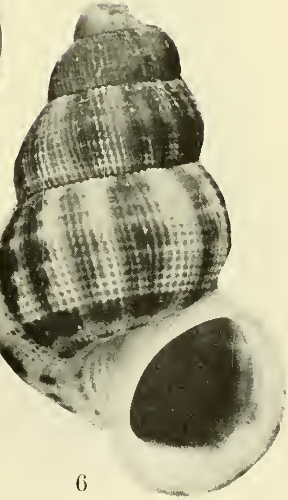

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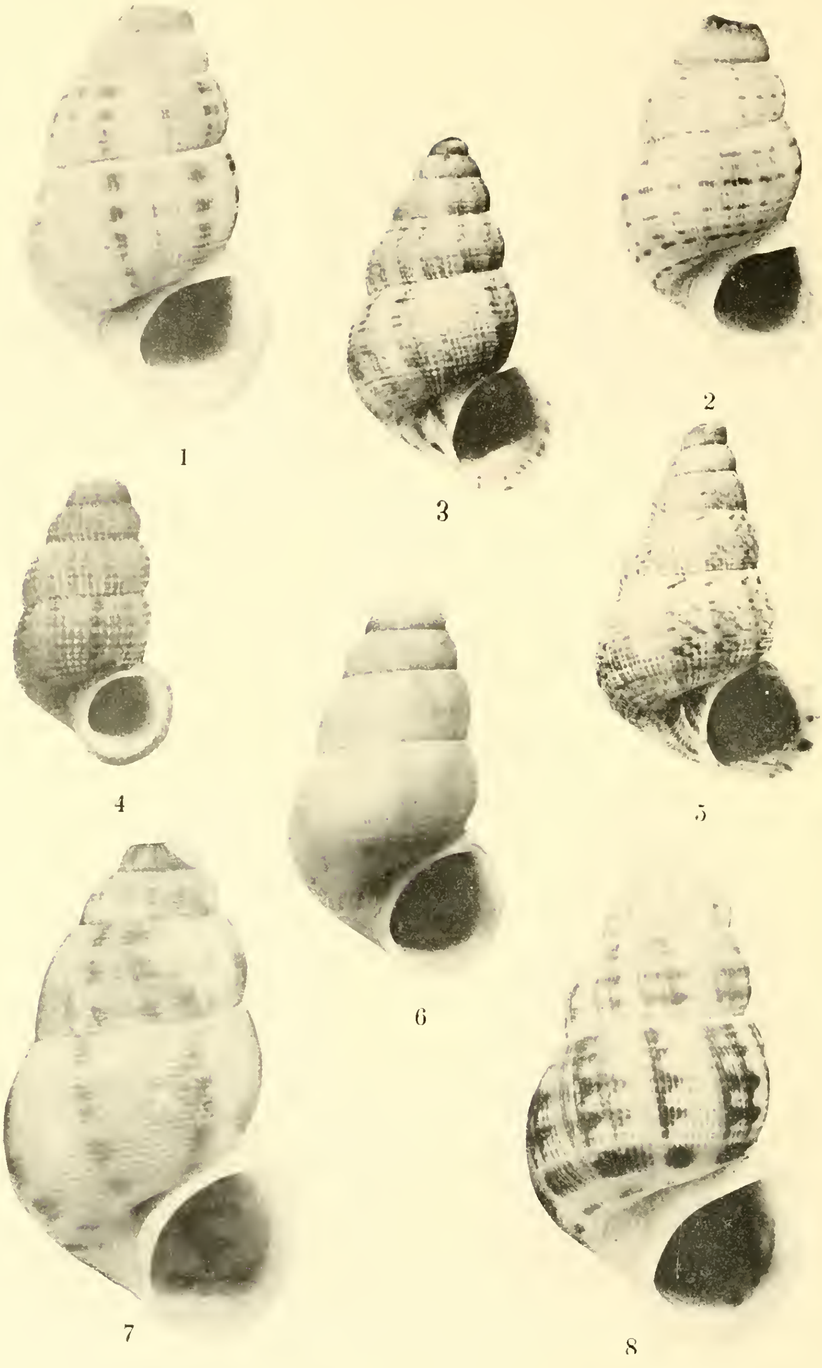
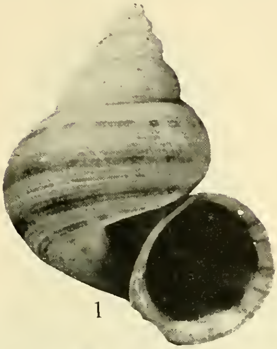
1, *Chondropoma* (*Chondropoma*) *quisquense quisquense*, new subspecies; 2, *C.* (*C.*) *q. sculptior*, new subspecies; 3, *C.* (*C.*) *eyerdami parishae*, new subspecies; 4, *C.* (*C.*) *genevievae*, new species; 5, *C.* (*C.*) *semilabris* (Lamarck); 6, *C. eyerdami eyerdami*, new subspecies.



1, *Chondropoma (Chondropoma) montalbense,* new species; 2, *C. (C.) catalinense,* new species; 3, *C. (C.) vanattae vanattae* Pilsbry; 4, *C. (C.) tortugaense,* new species; 5, *C. (C.) vanattae verettense,* new subspecies; 6, *C. (C.) solum,* new species; 7, *C. (C.) molense,* new species; 8, *C. (C.) brownianum* Weinland.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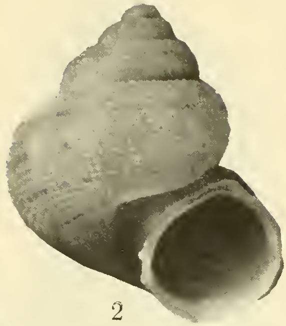
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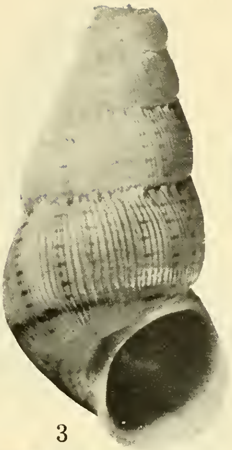
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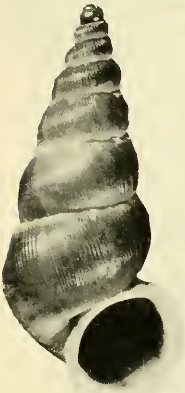
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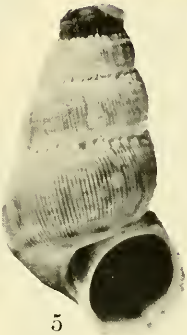
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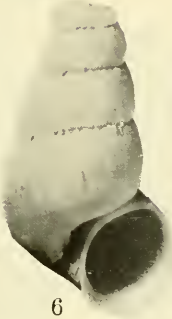
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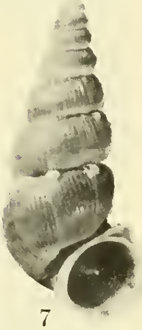
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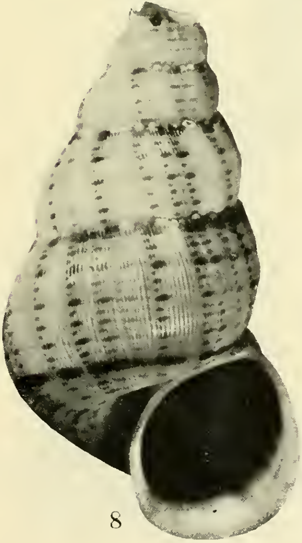
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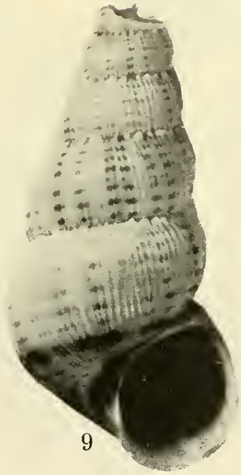
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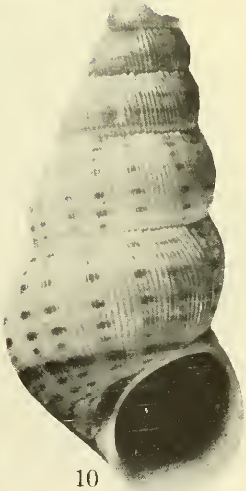
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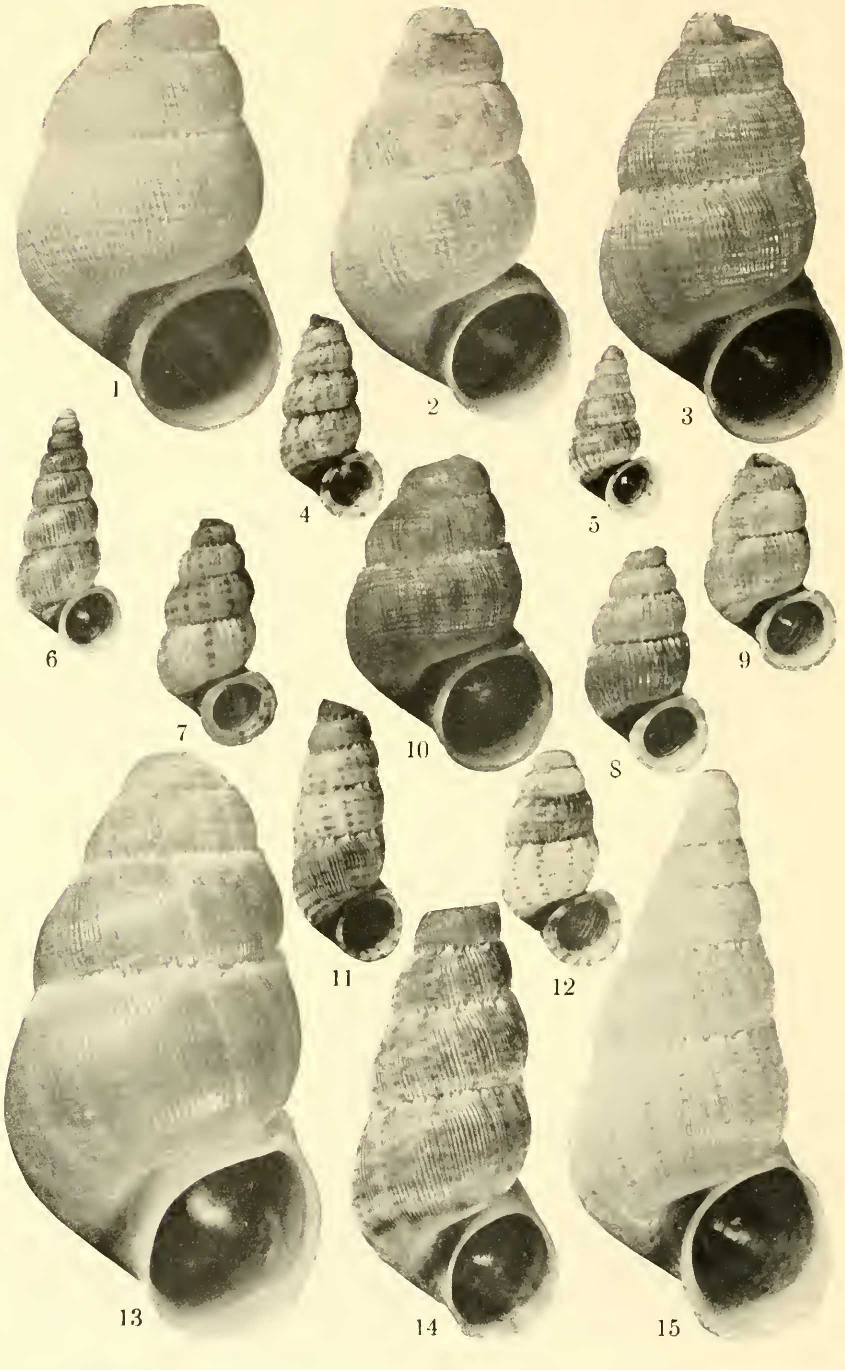
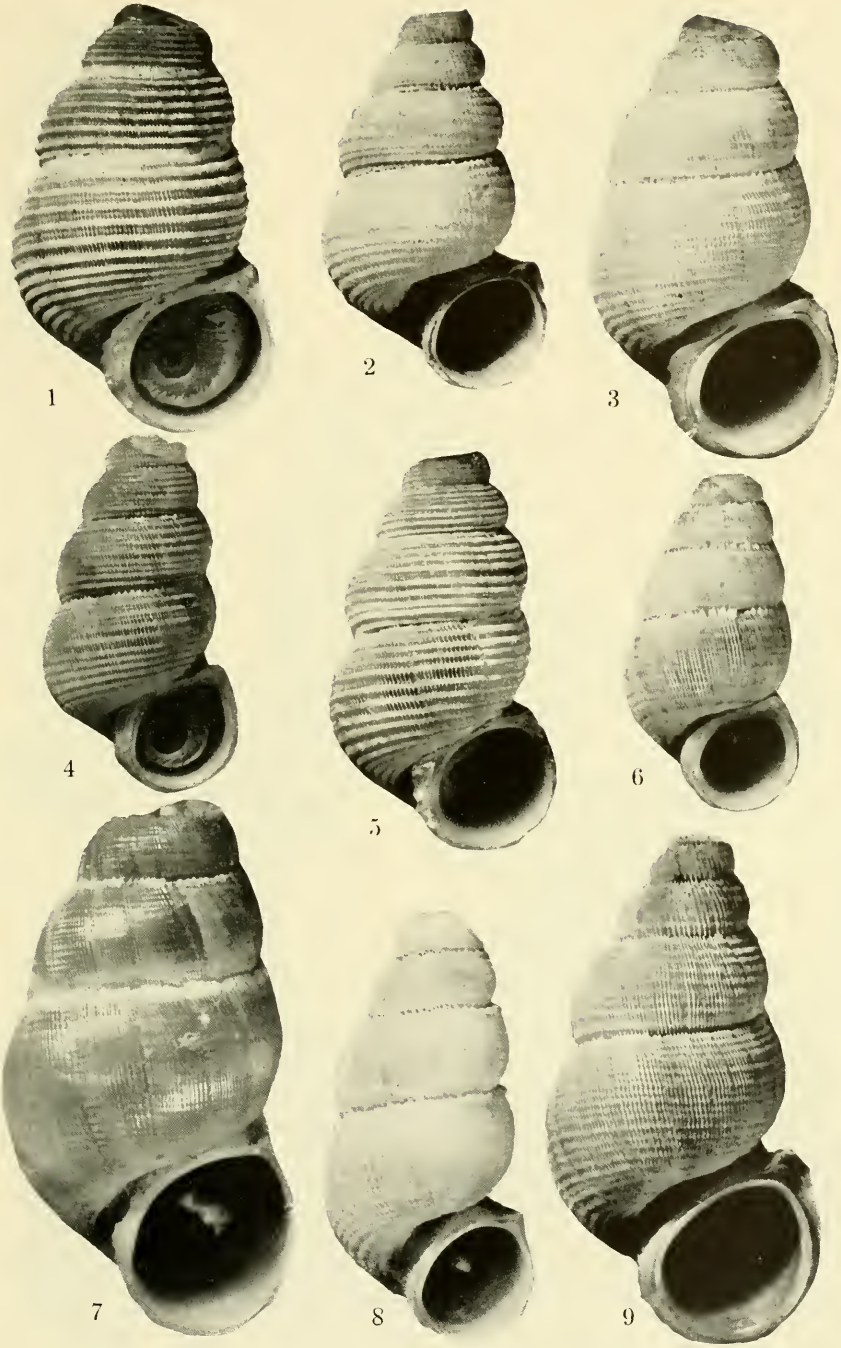
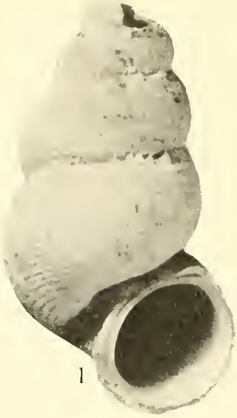
1, *Chondropoma* (*Chondropoma*) *abbotti*, new species; 2, *C.* (*C.*) *rabelense*, new species; 3, *Crossepoma emilianum emilianum* (Weinland); 4, *Parachondrisca umbricola cayemitensis*, new subspecies; 5, *Crossepoma australe australe*, new subspecies; 6, *C. a. vachense*, new subspecies; 7, *Parachondrisca umbricola umbricola* (Weinland); 8, *Crossepoma emilianum gibbosum*, new subspecies; 9, *C. hendersoni*, new species; 10, *emilianum insulanum*, new subspecies.



1, *Hispanipoma quaternatum dentilobatum* (Weinland); 2, *H. q. cabaretense*, new subspecies; 3, *H. q. monticolum*, new subspecies; 4, *Orcuttipoma rollei vachecolum*, new subspecies; 5, *O. r. fauxcapense*, new subspecies; 6, *O. orcutti*, new species; 7, *O. rollei blanchardi*, new subspecies; 8, *O. r. rollei* (Weinland); 9, *O. r. cayemitense*, new subspecies; 10, *Hispanipoma quaternatum charmettense*, new subspecies; 11, *Parachondrops* (*Clenchipoma*) *clenchi*, new species; 12, *Orcuttipoma rollei serraticosta* (Weinland); 13, *Hispanipoma quaternatum quaternatum* (Lamarck); 14, *Crossepoma jacmelense jacmelense*, new subspecies; 15, *C. j. cayesense*, new subspecies.



1, *Colonina molensis,* new species; 2, *Haitipoma eutyches wetmorei,* new subspecies; 3, *Colonina tortuensis,* new species; 4, *C. haitensis,* new species; 5, *C. moustiquensis,* new species; 6, *Haitipoma catalinense,* new species; 7, *H. marcense,* new species; 8, *H. eutyches eutyches* (Pilsbry); 9, *Colonina manielensis,* new species.



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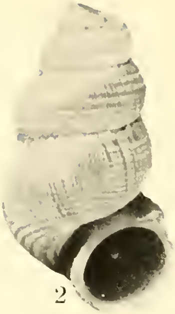

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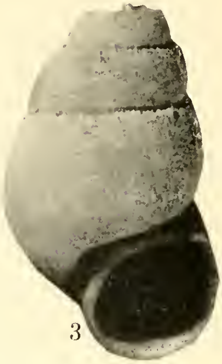

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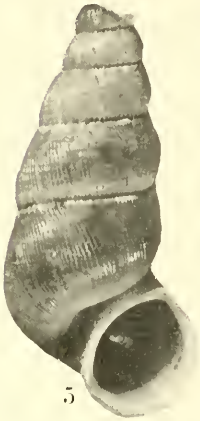

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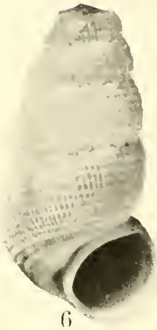

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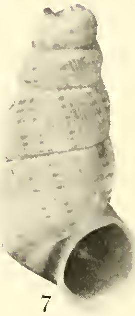

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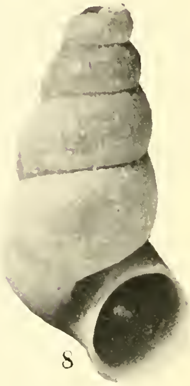

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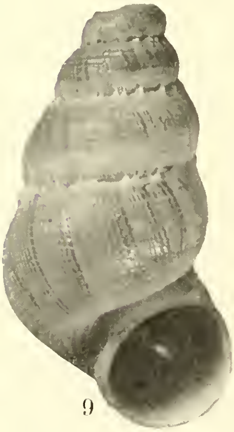

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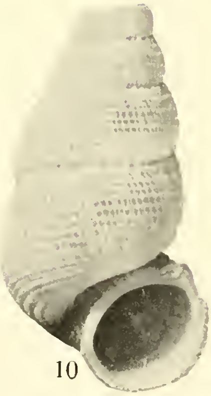

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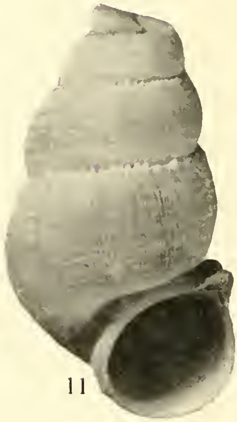

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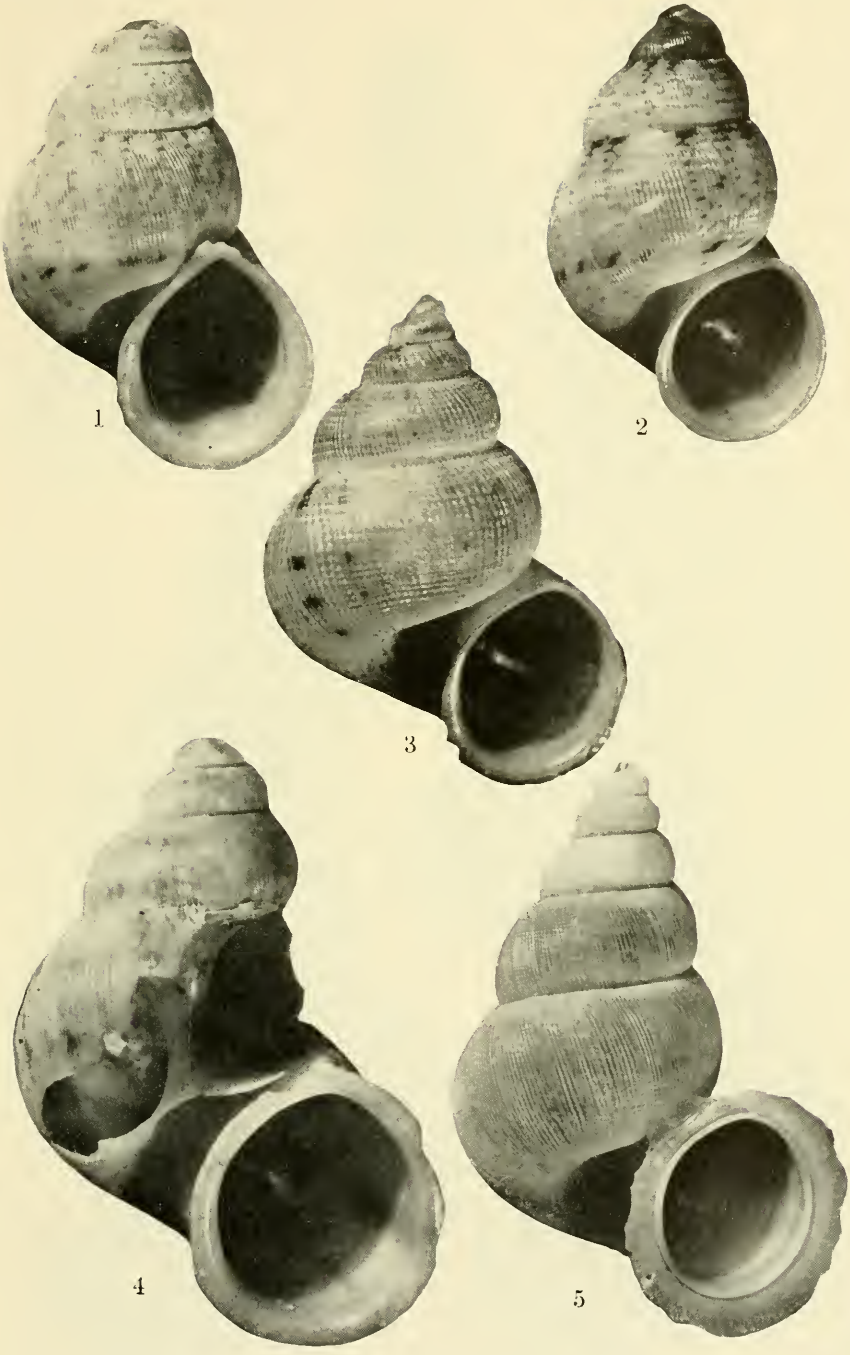
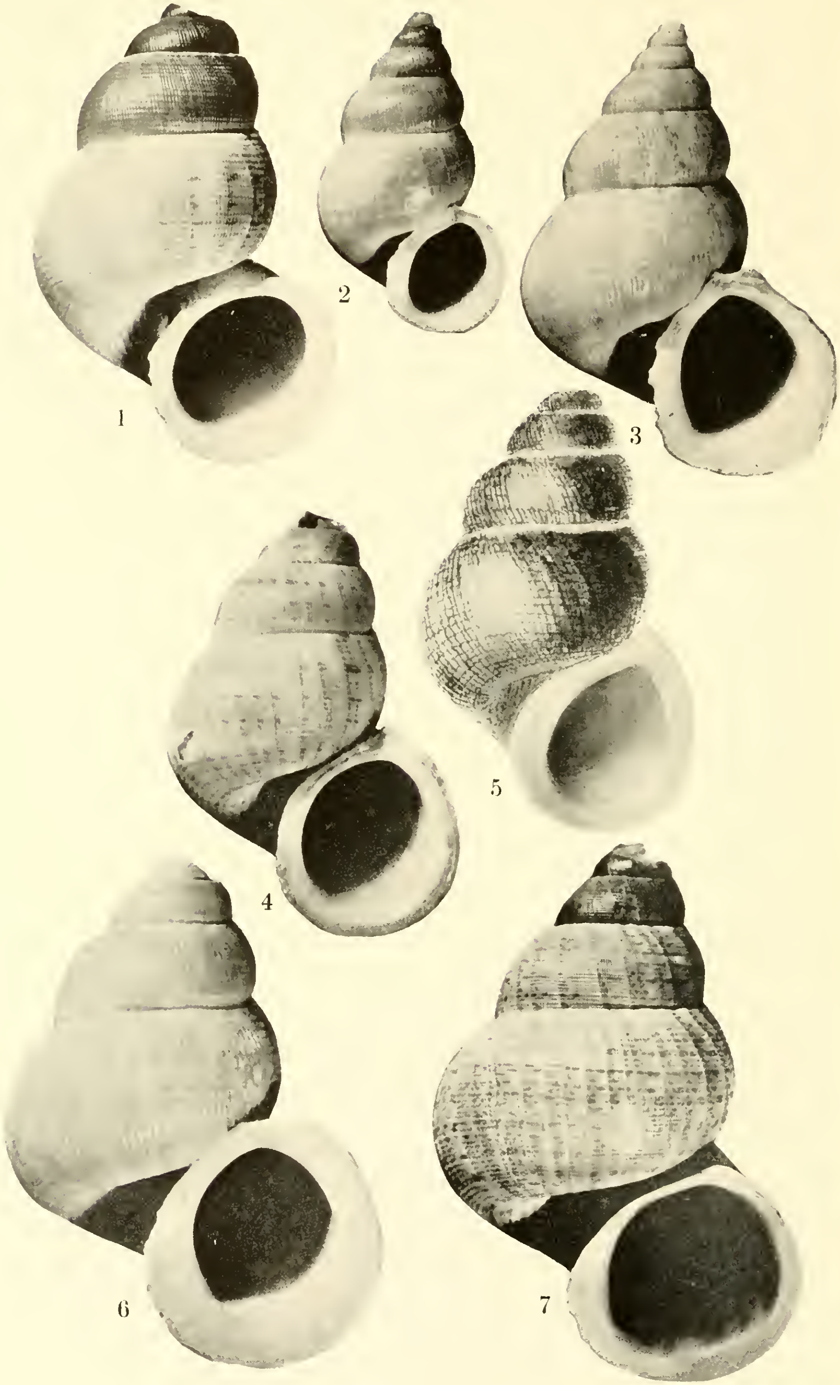
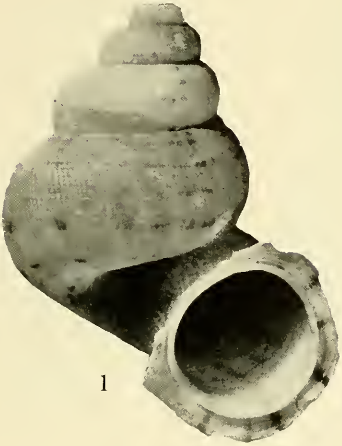
1, *Haitipoma poolei*, new species; 2, *H. aminense* (Pfeiffer); 3, *H. genevievae*, new species; 4, *H. abbotti*, new species; 5, *Klattea capillacea* (Pfeiffer; 6, *Haitipoma cinclidodes* (Pfeiffer); 7, *Klattea subreticulata* (Maltzan); 8, *K. capillacissima*, new species; 9, *Haitipoma hinchense*, new species; 10, *H. eutyches rabelense*, new subspecies; 11, *H. yaquense*, new species.



1, *Kisslingia clenchi* (Pilsbry); 2, *K. bahorucensis,* new species; 3, *K. hinchensis,* new species; 4, *K. poloensis,* new species; 5, *Licina kobelti* (Maltzan).



1, *Licina pestelensis*, new species; 2, *L. labeo* (Müller); 3, *L. gimbiensis*, new species; 4, *L. rollei* Maltzan; 5, *Incertipoma reeveanum* (Pfeiffer); 6, *Licina dubia* (Gmelin); 7, *L. evoluta* (Reeve).



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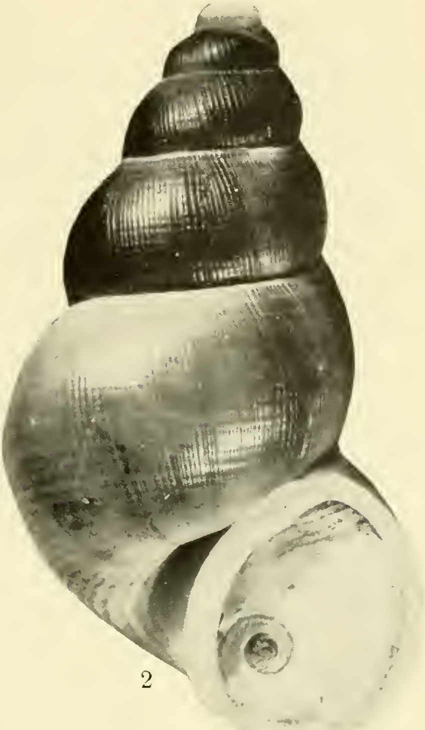

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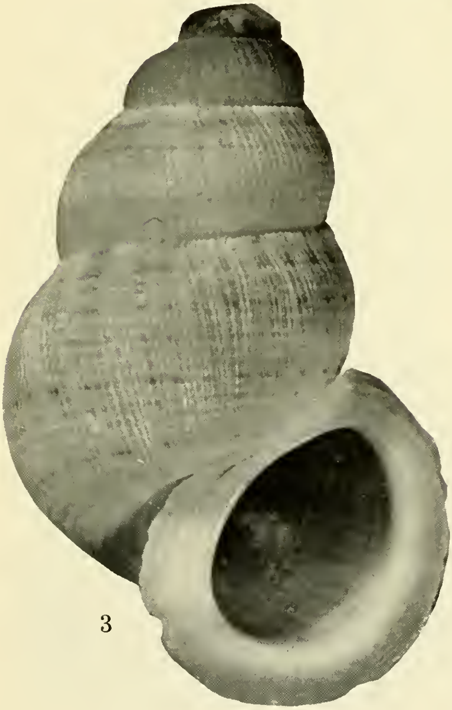

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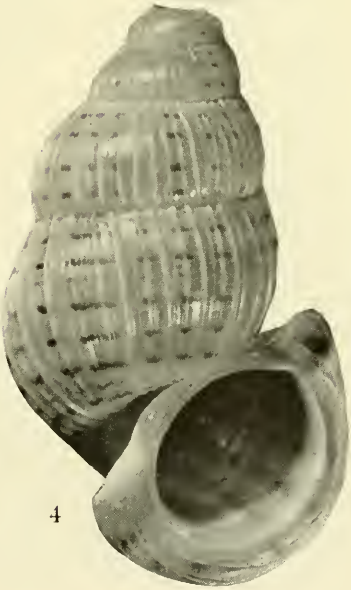

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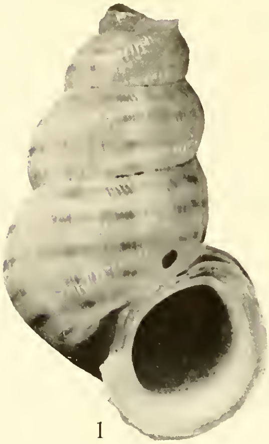
1, *Licina michelensis,* new species; 2, *L. cayemitensis,* new species; 3, *L. habichi* (Weinland); 4, *Sallepoma ambiguum* (Lamarck).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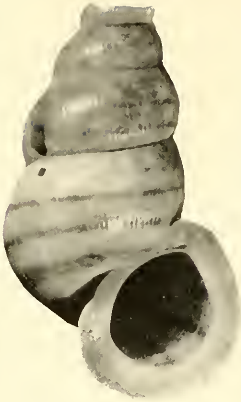
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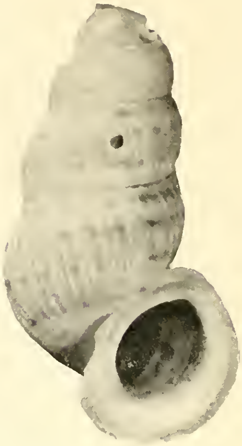
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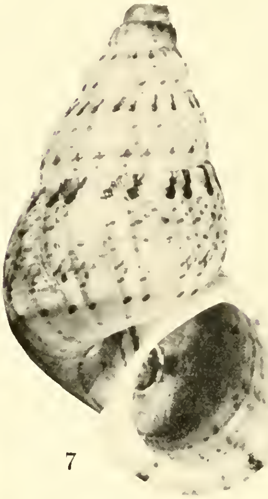
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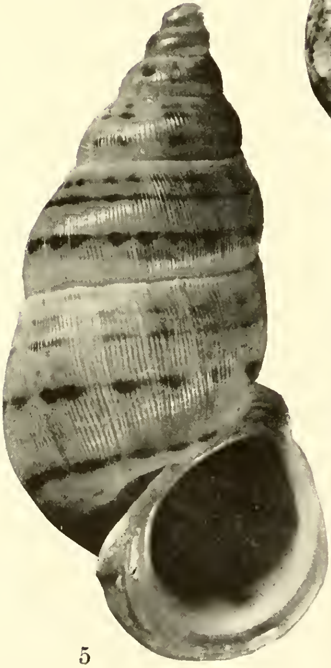
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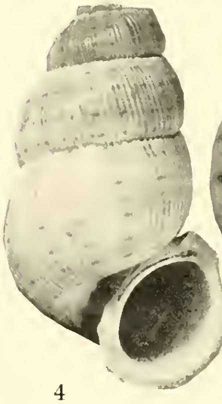
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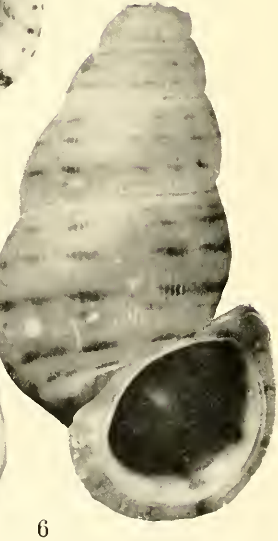
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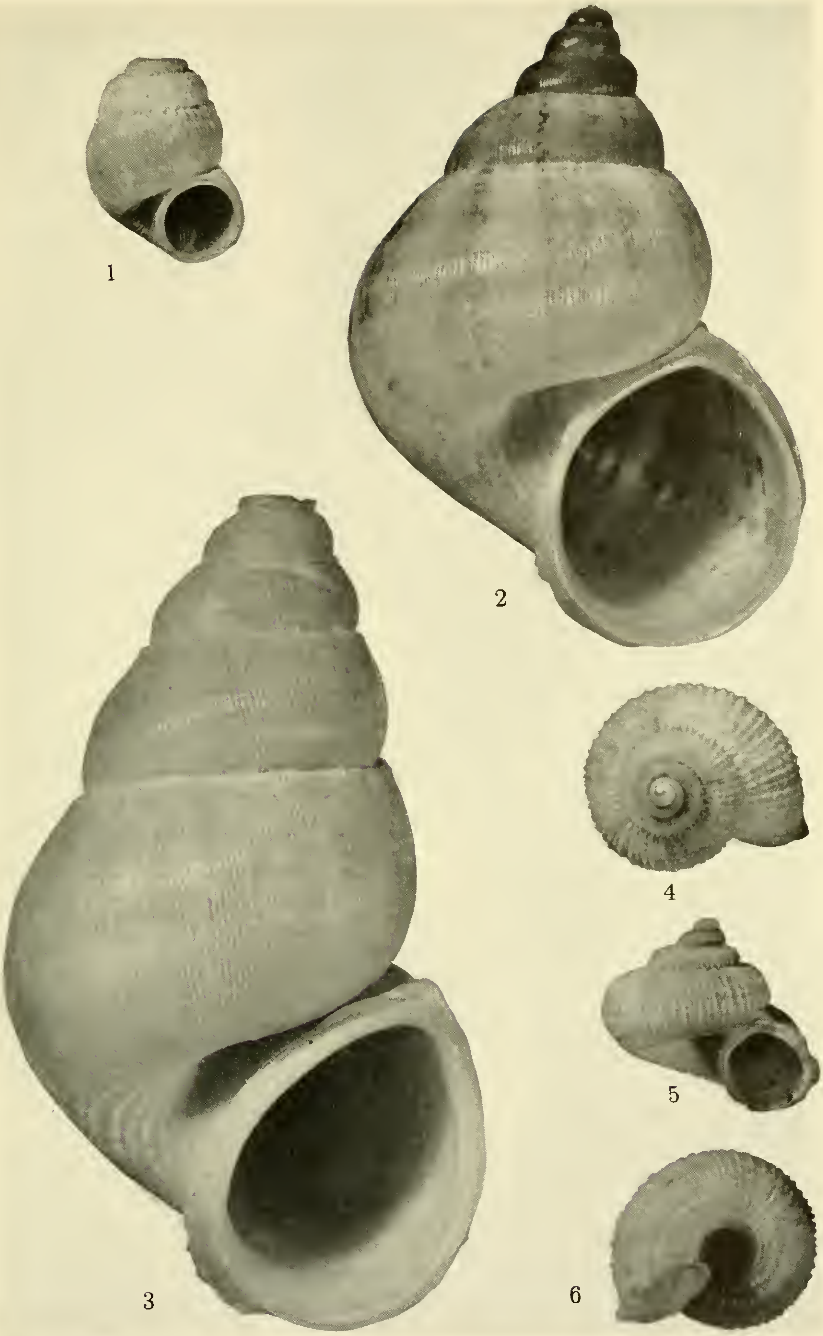
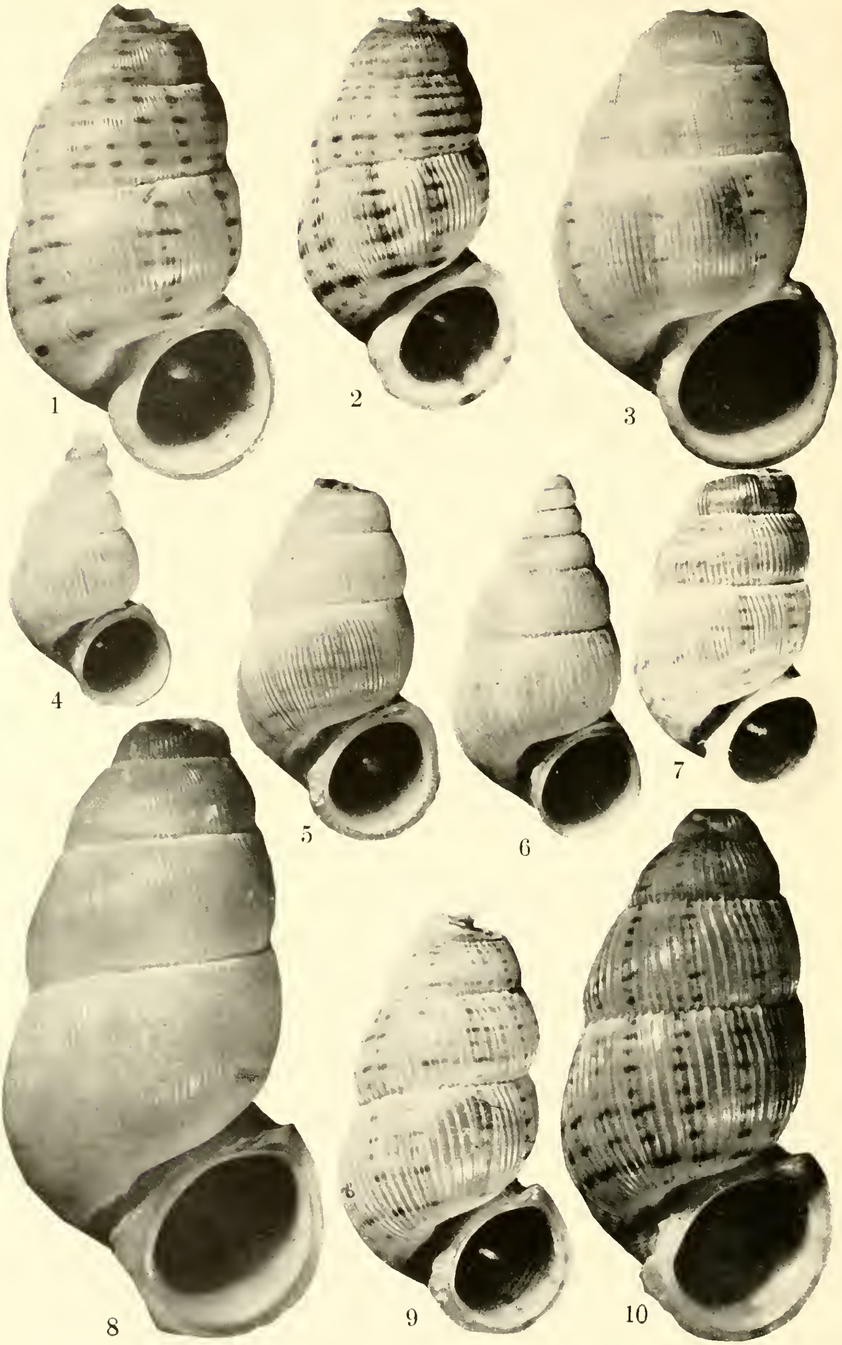
1, *Sallepoma occidentale cayemiticolum*, new subspecies; 2, *S. o. occidentale*, new subspecies; 3, *S. corailense*, new species; 4, *S. vachense*, new species; 5, *S. pulchellum pulchellum*, new subspecies; 6, *S. p. bonbonense*, new subspecies; 7, *Chondropoma* (*Articulipoma*) *woodringi*, new species.



1, *Colobostylus (Colobostyloides) saxorum* (Weinland); 2, *Clydonopoma (Eccritopoma) peasei* (Pilsbry); 3, *C. (Clydonopoma) nobile* (Pfeiffer); 4-6, *Petasipoma bombardopolense*, new species.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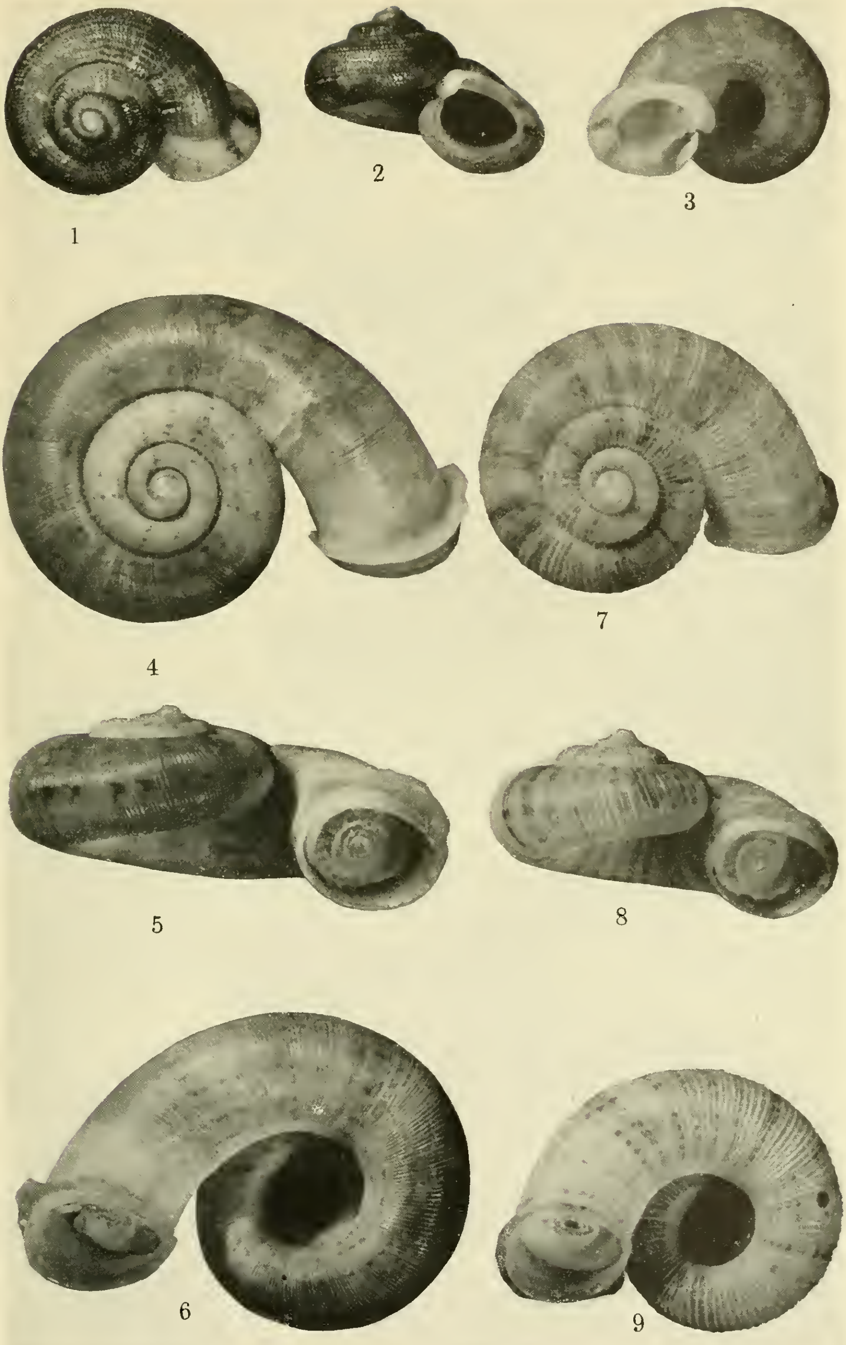
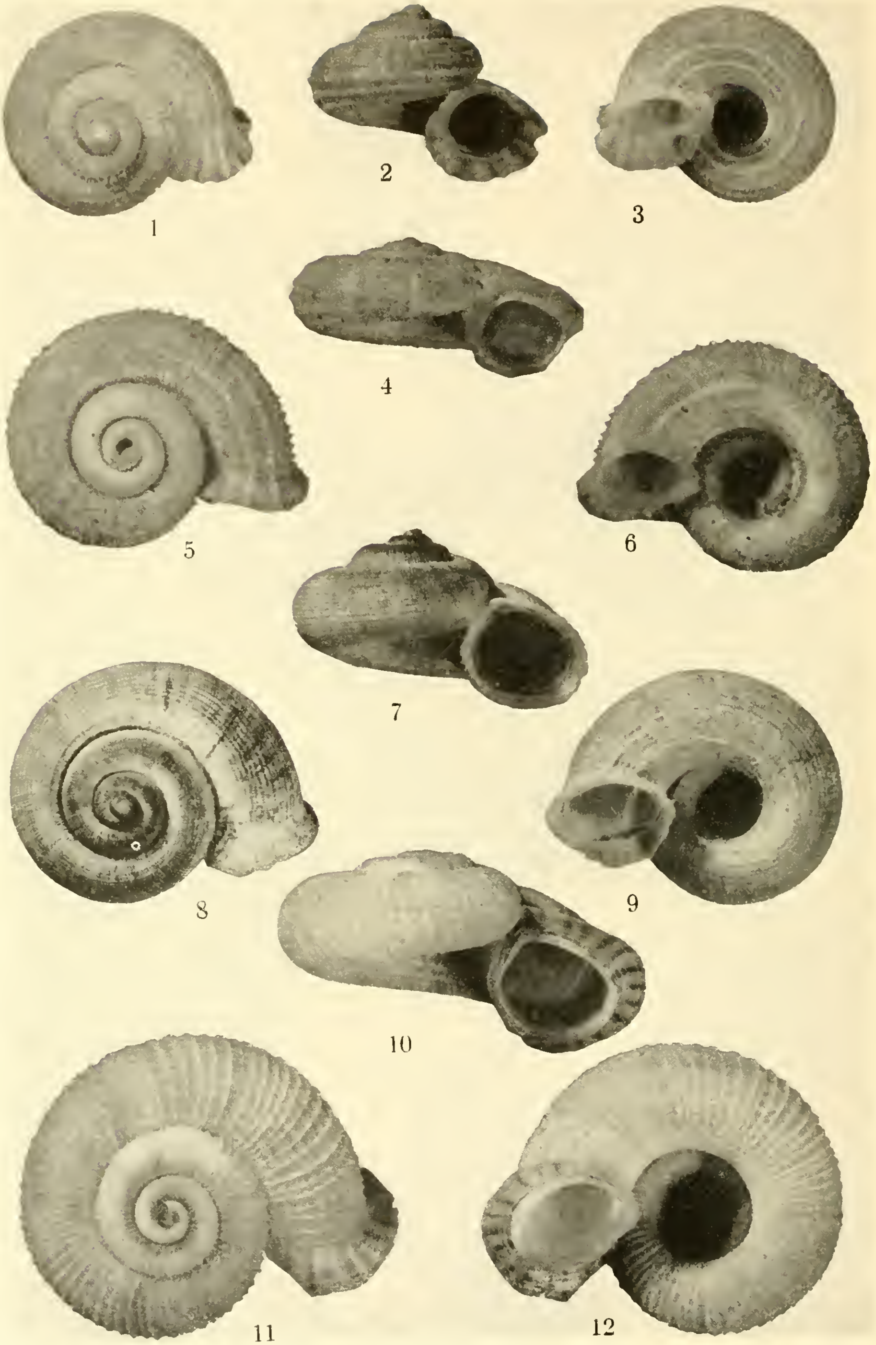
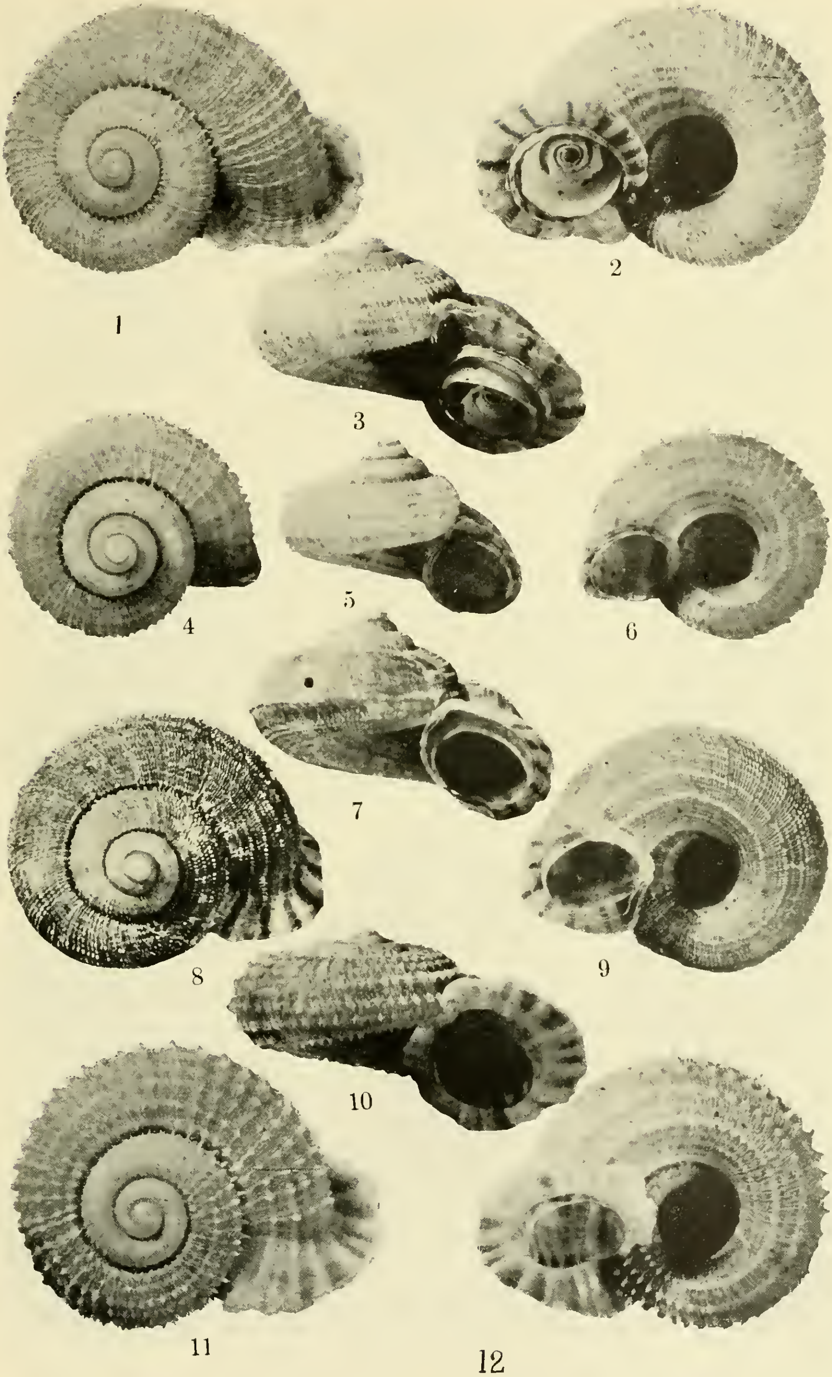
1-10, *Sallepoma mutabile,* new species, showing variations in size and sculpture.



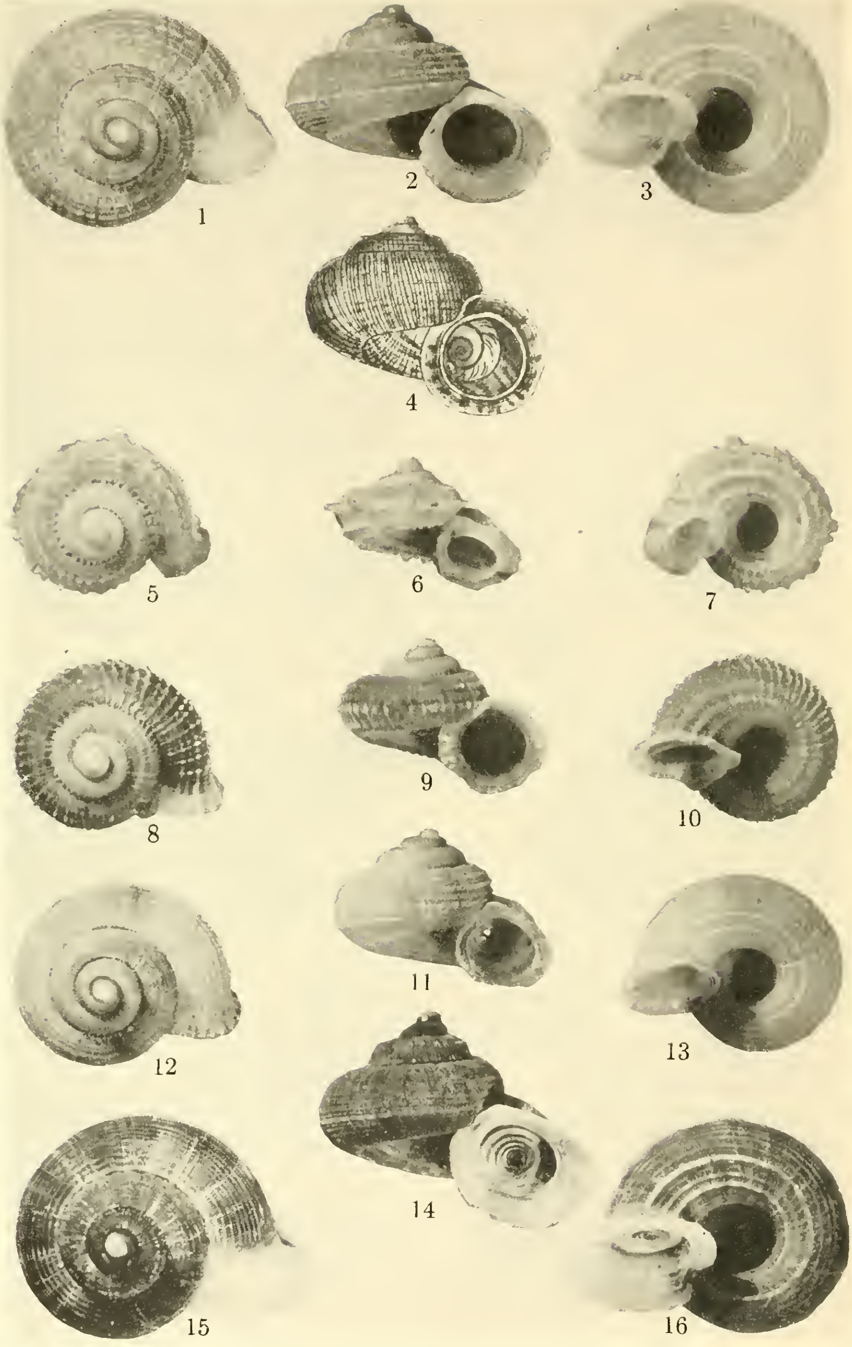
1-3, *Lagopoma lagopoma,* new species; 4-6, *Rolleia martensi* (Maltzan); 7-9, *R. haitensis,* new species.



1-3, *Abbottella wilhelmi* (Pfeiffer); 4-6, *A. moreletiana kriegeri*, new subspecies; 7-9, *A. newcombi* (Crosse); 10-12, *A. haitensis*, new species.



1-3, *Abbottella moreletiana domingoensis*, new subspecies; 4-6, *A. m. gabriella*, new subspecies; 7-9, *A. samanensis*, new species; 10-12, *A. moreletiana moreletiana* (Crosse).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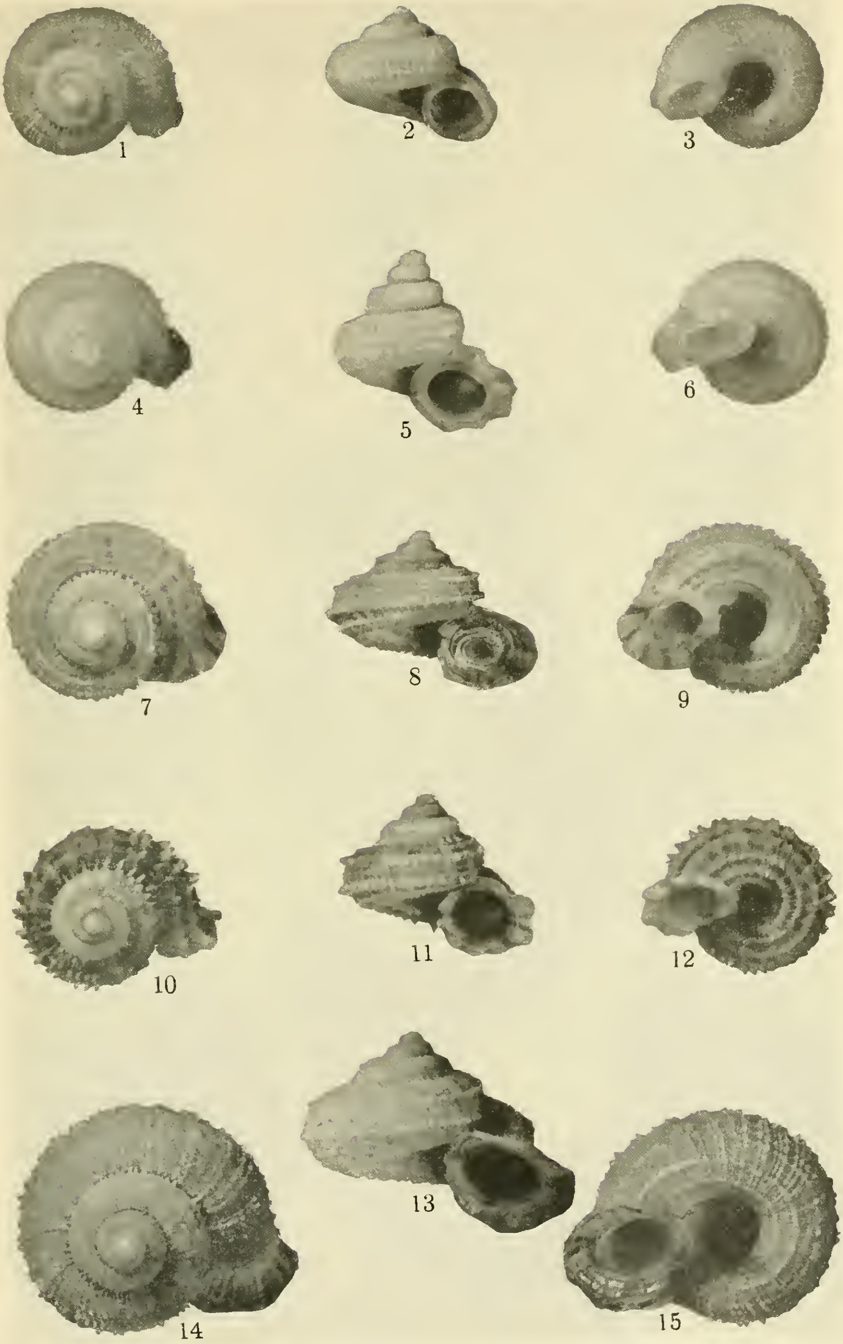
1-3, *Abbottella sanchezi,* new species; 4, *A. adolphi adolphi* (Pfeiffer); 5-7, *A. gabbi gabbi* (Crosse); 8-10, *A. moreletiana wetmorei,* new subspecies; 11-13, *A. sosuaensis,* new species; 14-16, *A. adolphi peninsularis,* new subspecies.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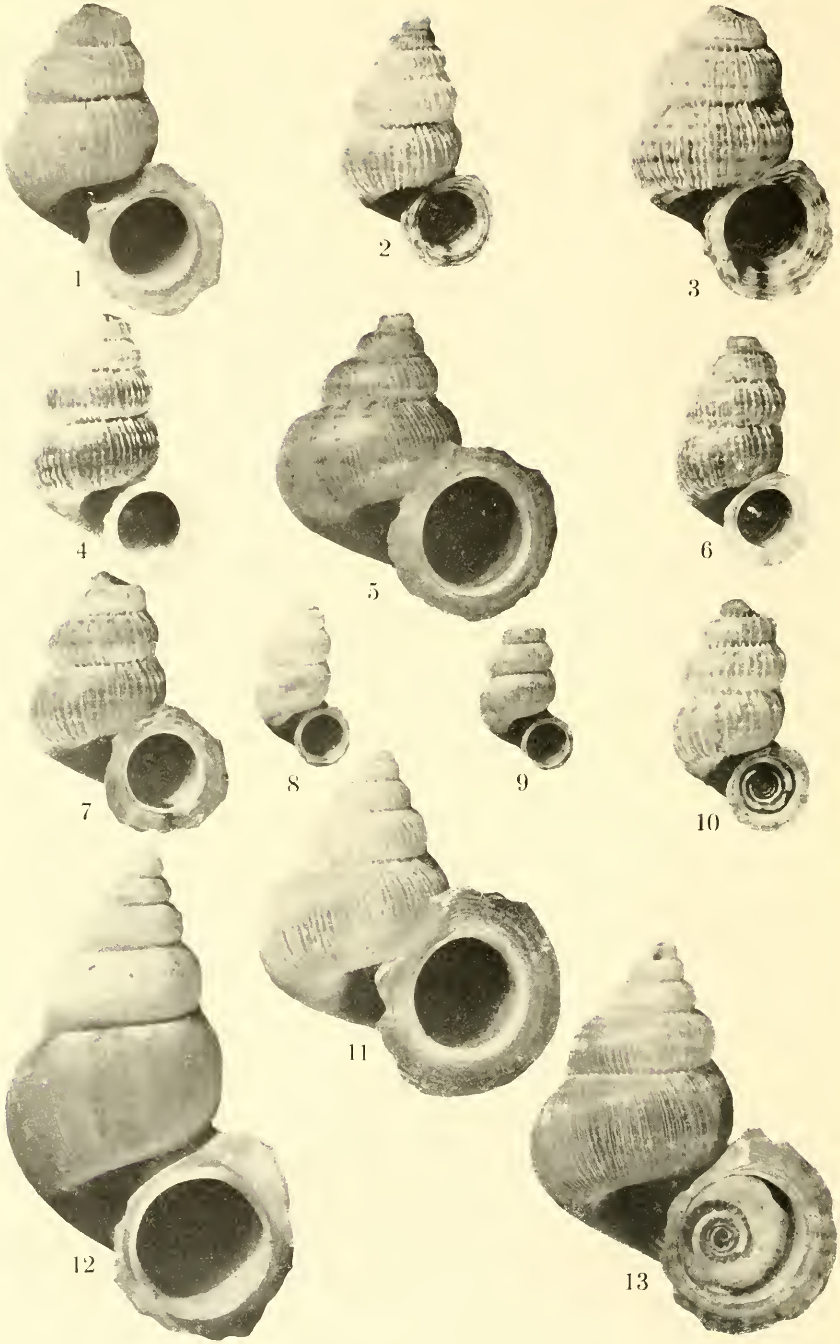
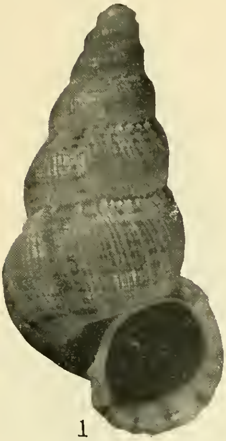
1-3, *Abbottella tentorium* (Pfeiffer); 4-6, *A. rosaliae* (Pfeiffer); 7-9, *A. gabbi pilsbryi*, new subspecies; 10-12, *A. abbotti*, new species; 13-15, *A. crossei* (Pilsbry).



1, *Weinlandipoma excisum*, new species; 2, *W. gonavense conceptum*, new subspecies; 3, *W. g. robustum*, new subspecies; 4, *W. g. gonavense* (Weinland); 5, *Eyerdamia princesa*, new species; 6, *Weinlandipoma orcutti*, new species; 7, *W. strictecostatum* (Maltzan); 8, *W. meridianum*, new species; 9, *W. milleri*, new species; 10, *W. blandii* (Weinland); 11, *Eyerdamia eyerdami*, new species; 12, *Christophipoma bertini gracillimum* (Maltzan); 13, *C. b. bertini* (Maltzan).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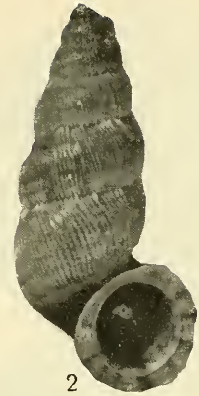
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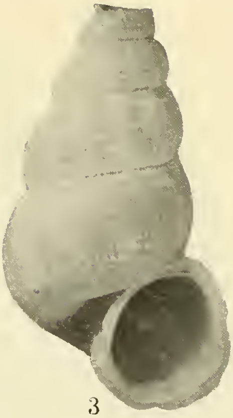
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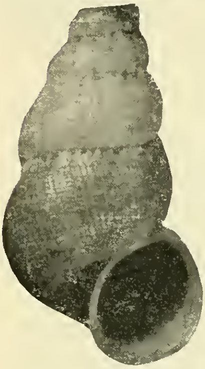
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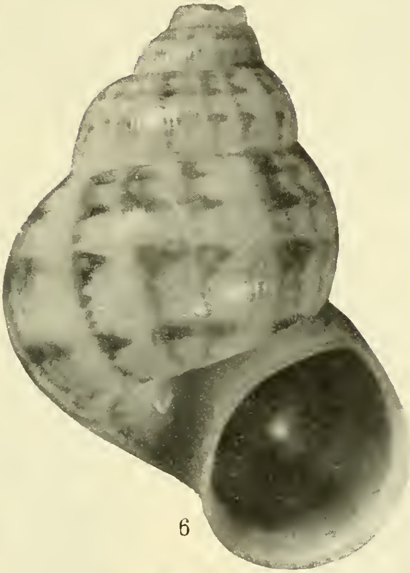
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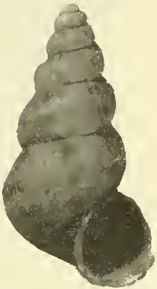
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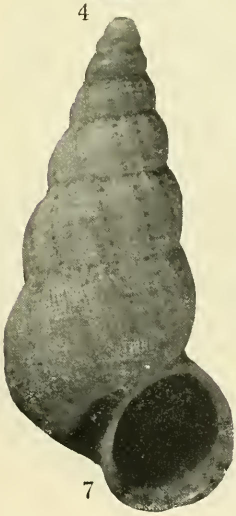
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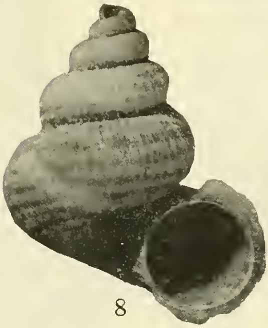
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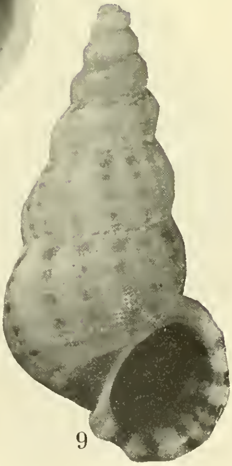
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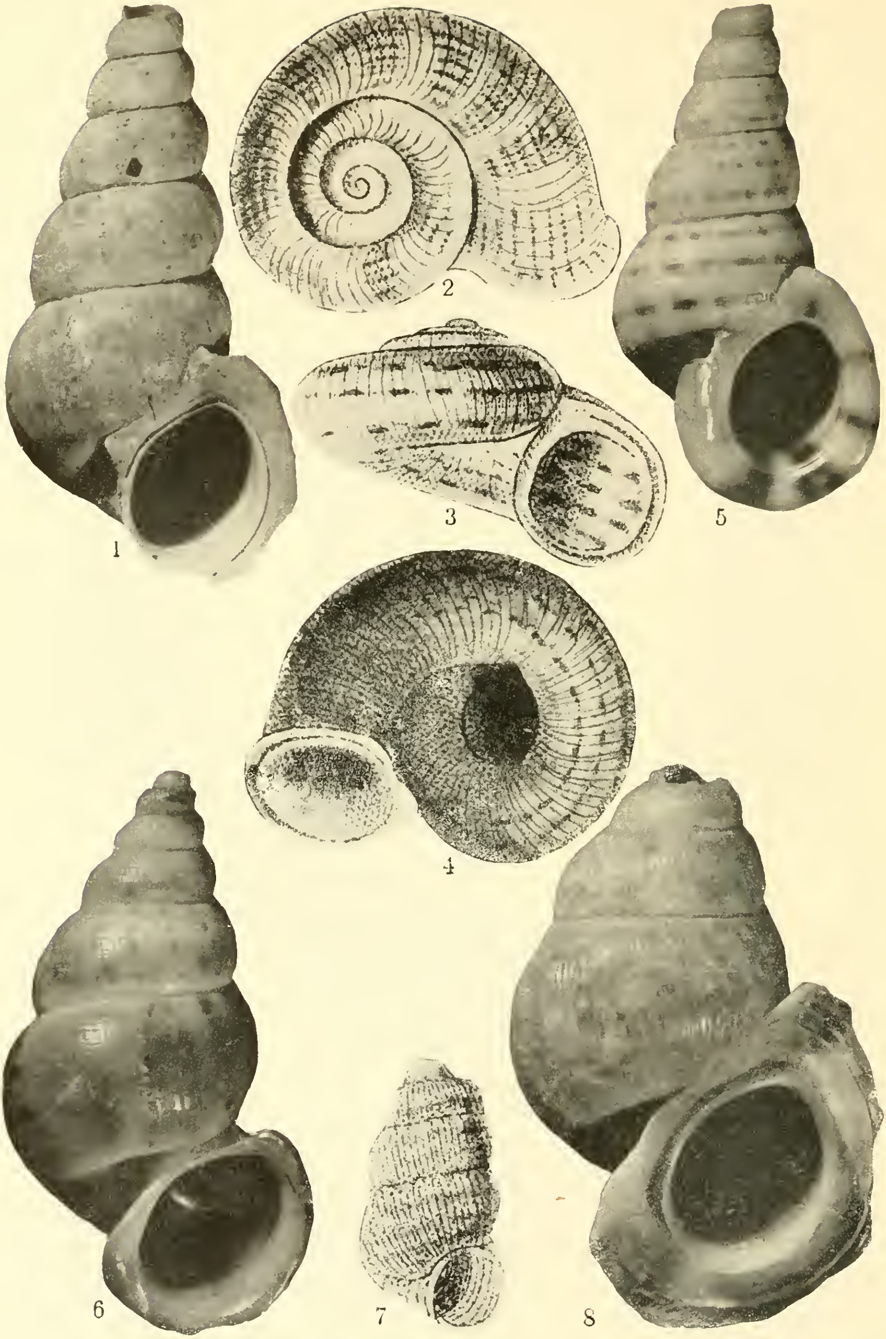
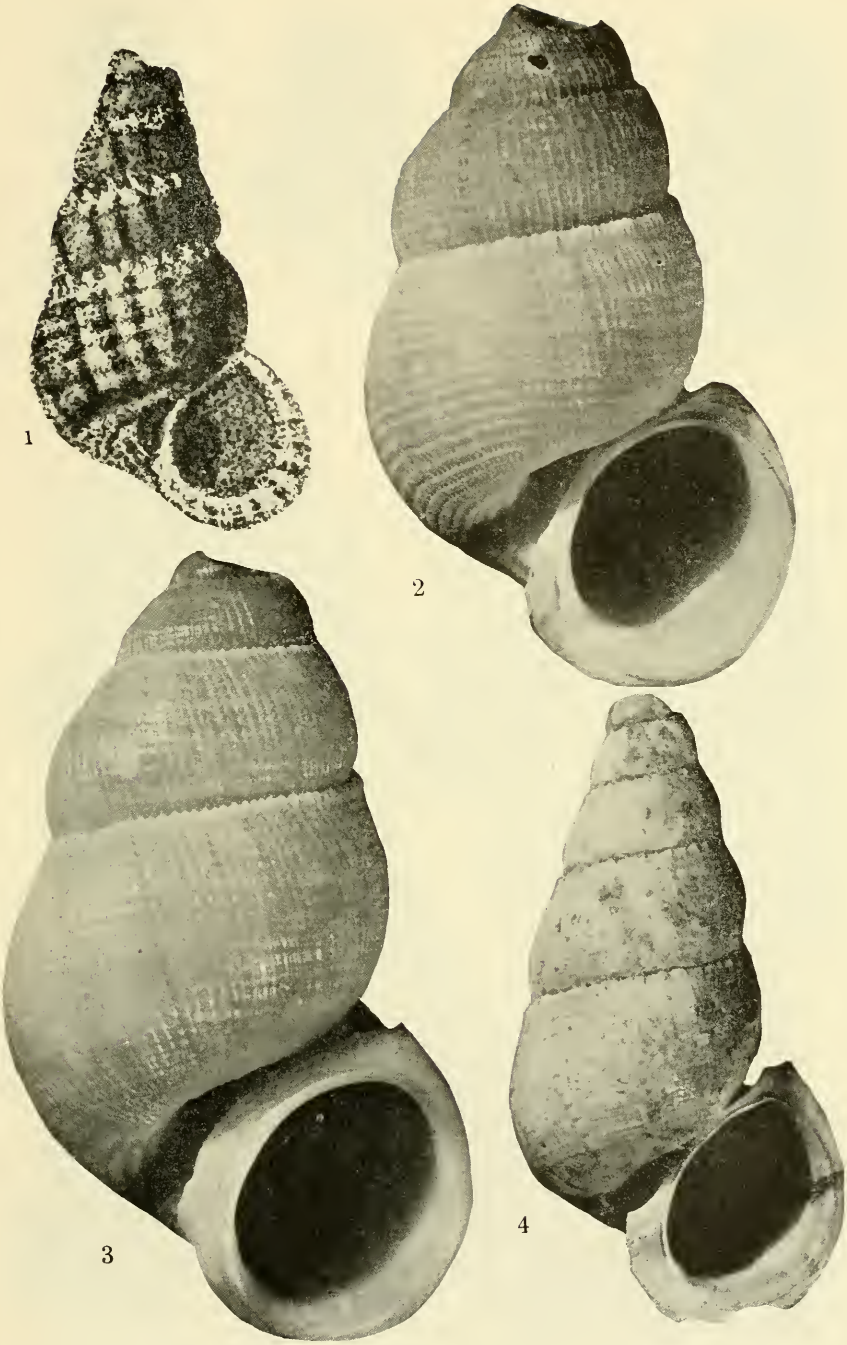
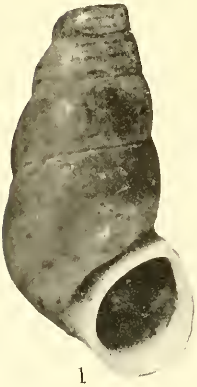
1, *Troschelvindex abbotti* (Henderson and Bartsch); 2, *T. miragoanensis*, new species; 3, *T. tortuensis*, new species; 4, *Incertipoma ferox*, new species; 5, *I. elegantissimum*, new species; 6, *I. subglobosum*, new species; 7, *Troschelvindex gonaivensis*, new species; 8, *Incertipoma lamellosum*, new species; 9, *Troschelvindex laferrierensis*, new species.



1, *Incertipoma sanjuanense*, new species; 2-4, *I. solutum* (Pfeiffer); 5, *I. nesiotes*, new species; 6, *diaphanum*, new species; 7, *dominicense* (Pfeiffer); 8, *I. virile*, new species.



1, *Incertipoma marinum* (Reeve); 2, *goavense,* new species; 3, *I. difficile,* new species; 4, *I. samanicolum,* new species.



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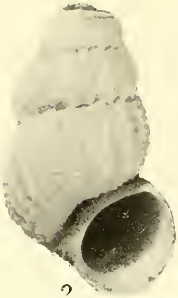

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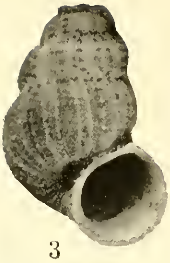

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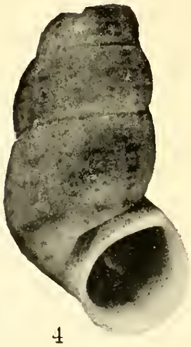

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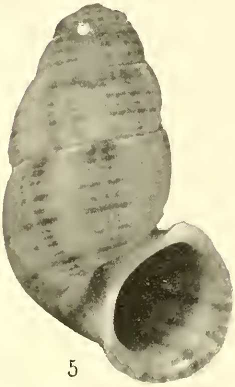

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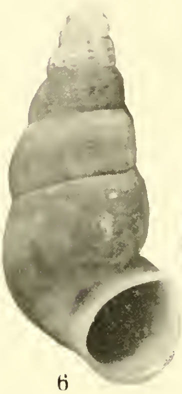

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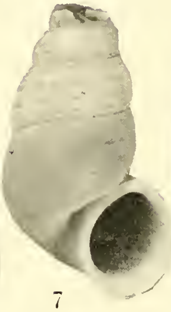

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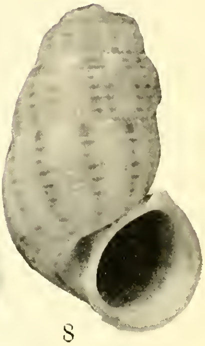

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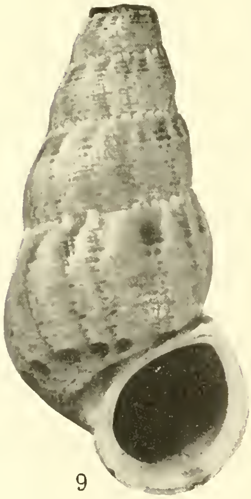

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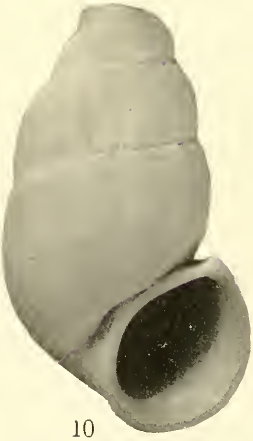

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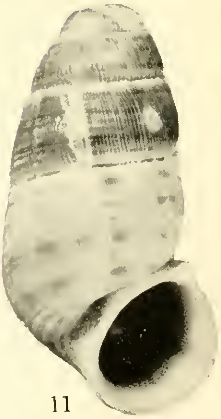

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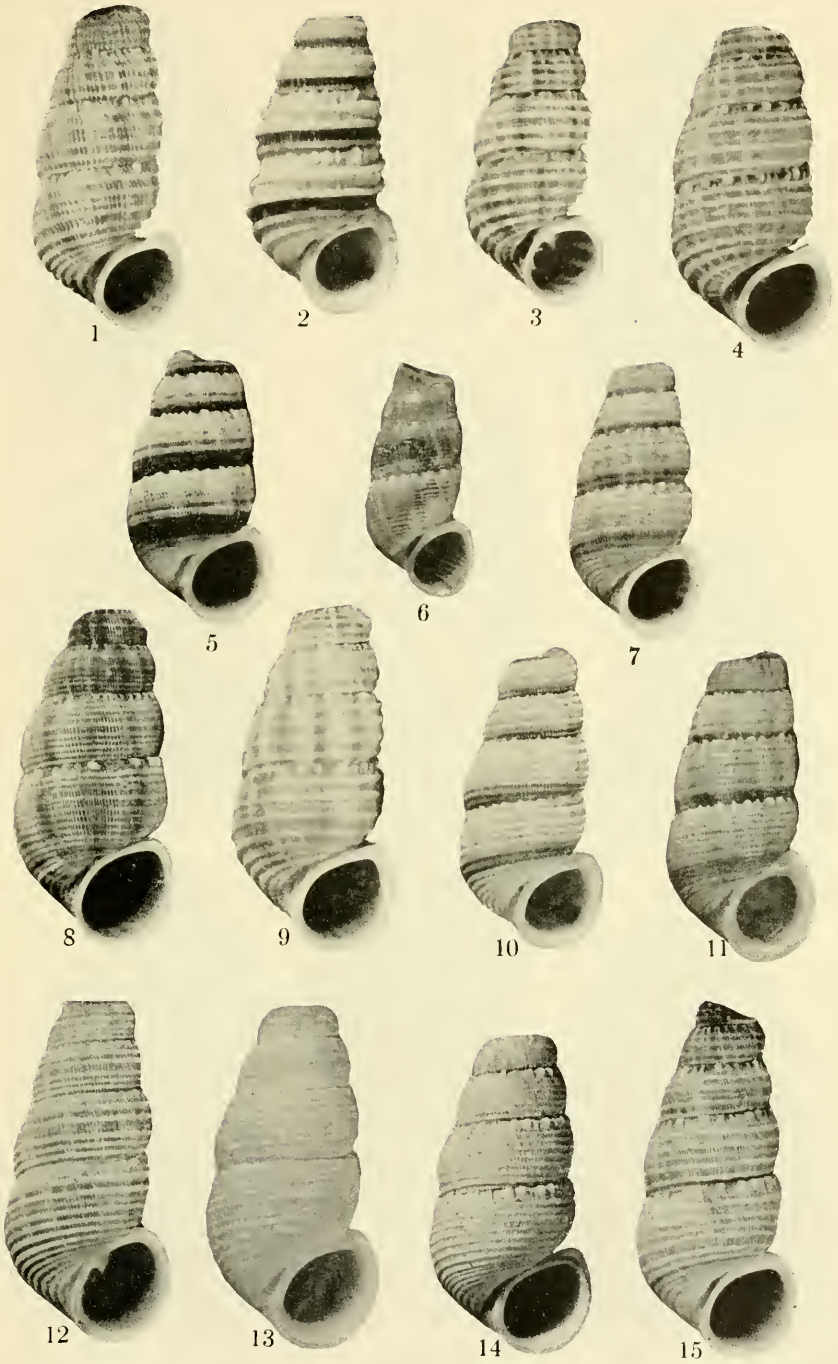
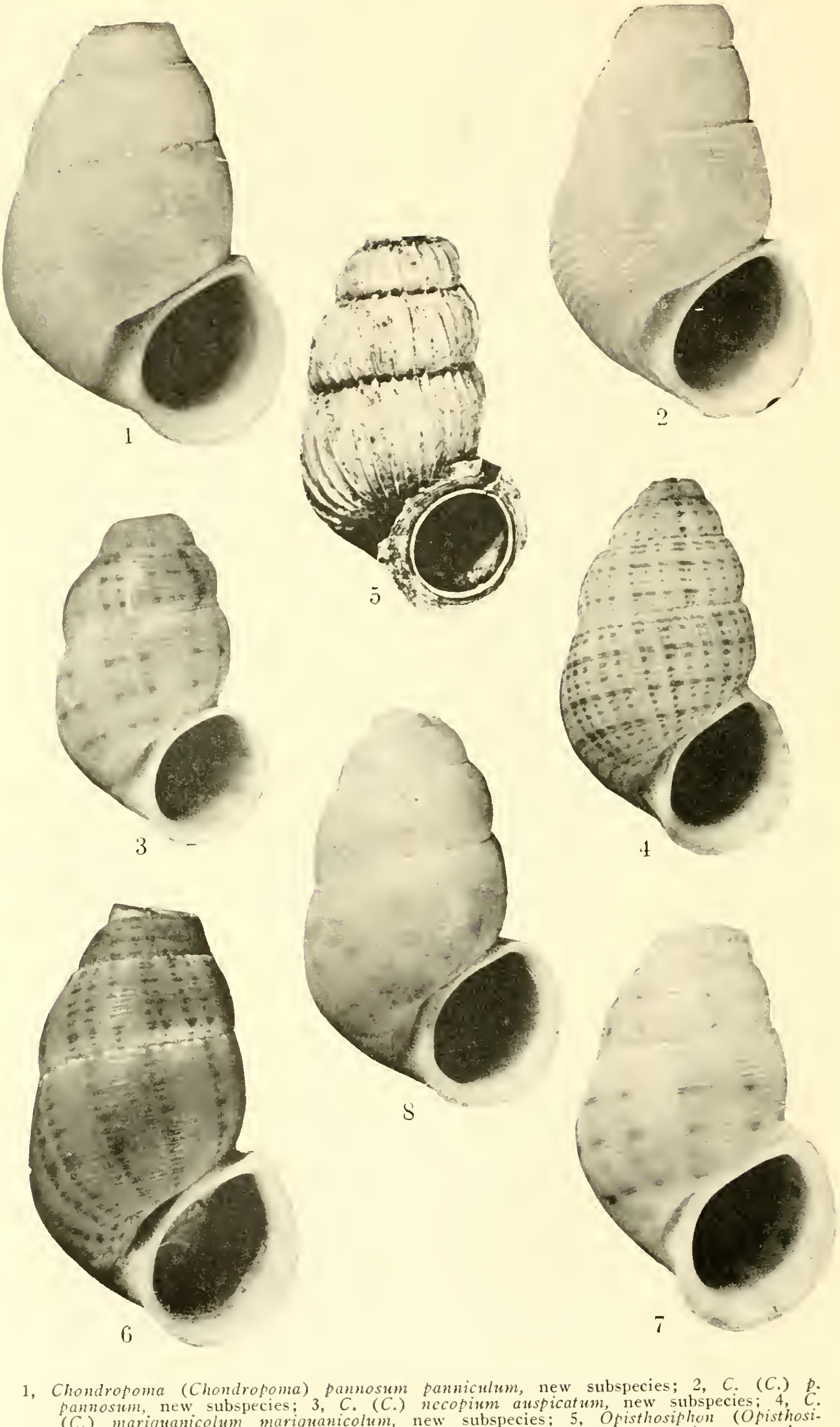
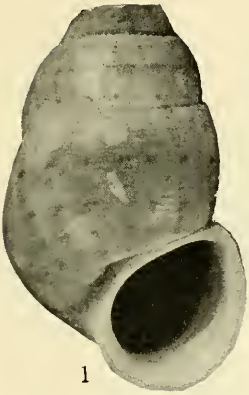
1, *Chondropoma* (*Levipoma*) *inaguellum*, new species; 2, *C.* (*Chondropomisca*) *providencialense*, new species; 3, *C.* (*C.*) *saccharinetense*, new species; 4, *C.* (*Levipoma*) *inaguativum petersi*, new subspecies; 5, *C.* (*Chondropoma*) *graniferum saxicolum*, new subspecies; 6, *C.* (*Levipoma*) *inaguativum inaguativum*, new subspecies; 7, *C.* (*Chondropoma*) *graniferum malcolmense*, new subspecies; 8, *C.* (*C.*) *g. graniferum*, new subspecies; 9, *C.* (*Chondropomorus*) *canescens nassauense*, new subspecies; 10, *C.* (*Chondropoma*) *graniferum burnetense*, new subspecies; 11, *C.* (*Chondropomorus*) *erroneum*, new species.



1, *Chondropoma* (*Chondrops*) *cometense*, new species; 2, *C.* (*C.*) *inaguicolum*, new species; 3, *C.* (*C.*) *baconi caicoense*, new subspecies; 4, *C.* (*C.*) *b. baconi*, new subspecies; 5, *C.* (*C.*) *planense*, new species; 6, *C.* (*C.*) *rawsoni* (Pfeiffer); 7, *C.* (*C.*) *biforme salarium*, new subspecies; 8, *C.* (*C.*) *b. biforme* Pfeiffer; 9, *C.* (*C.*) *baconi rathbuni*, new subspecies; 10, *C.* (*C.*) *biforme neyi*, new subspecies; 11, *C.* (*C.*) *b. sulaense*, new subspecies; 12, *C.* (*C.*) *b. gambelense*, new subspecies; 13, *C.* (*C.*) *b. arenarium*, new subspecies; 14, *C.* (*C.*) *b. cottonense*, new subspecies; 15, *C.* (*C.*) *b. bellense*, new subspecies.



1, *Chondropoma* (*Chondropoma*) *pannosum panniculum,* new subspecies; 2, *C.* (*C.*) *p. pannosum,* new subspecies; 3, *C.* (*C.*) *necopium auspicatum,* new subspecies; 4, *C.* (*C.*) *mariguanicolum mariguanicolum,* new subspecies; 5, *Opisthosiphon* (*Opisthosiphona*) *insulae-felis* Clench; 6, *Chondropoma* (*Chondropoma*) *necopium necopium,* new subspecies; 7, *C.* (*C.*) *planicolum,* new species; 8, *C.* (*C.*) *mariguanicolum stolidum,* new subspecies.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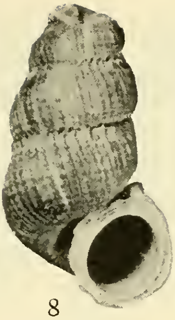
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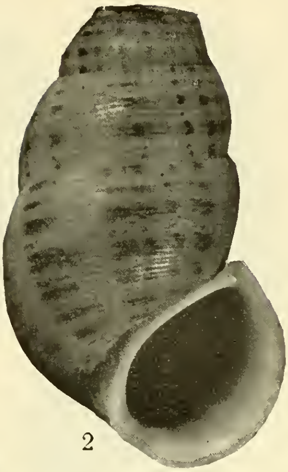
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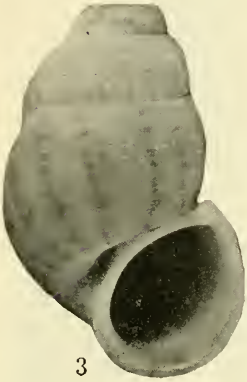
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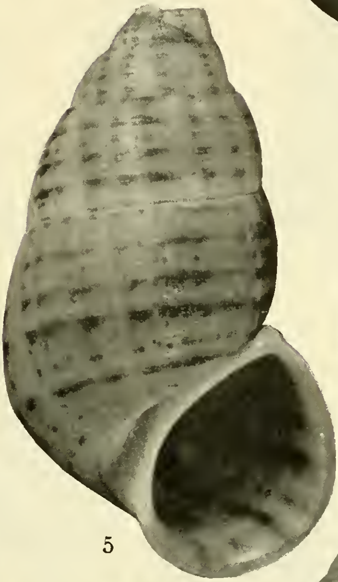
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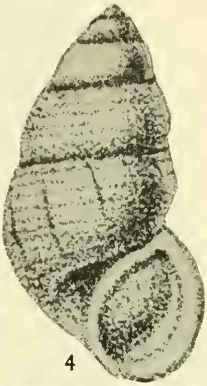
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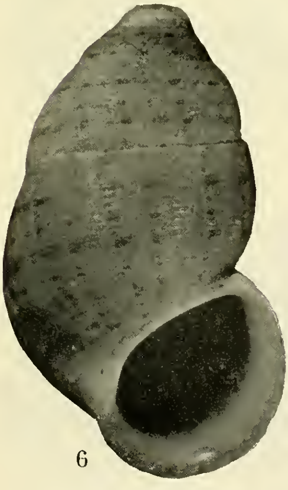
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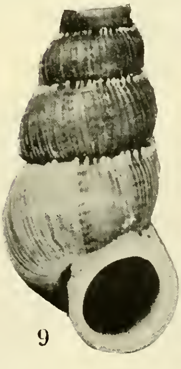
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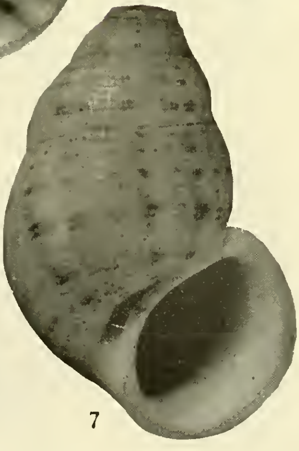
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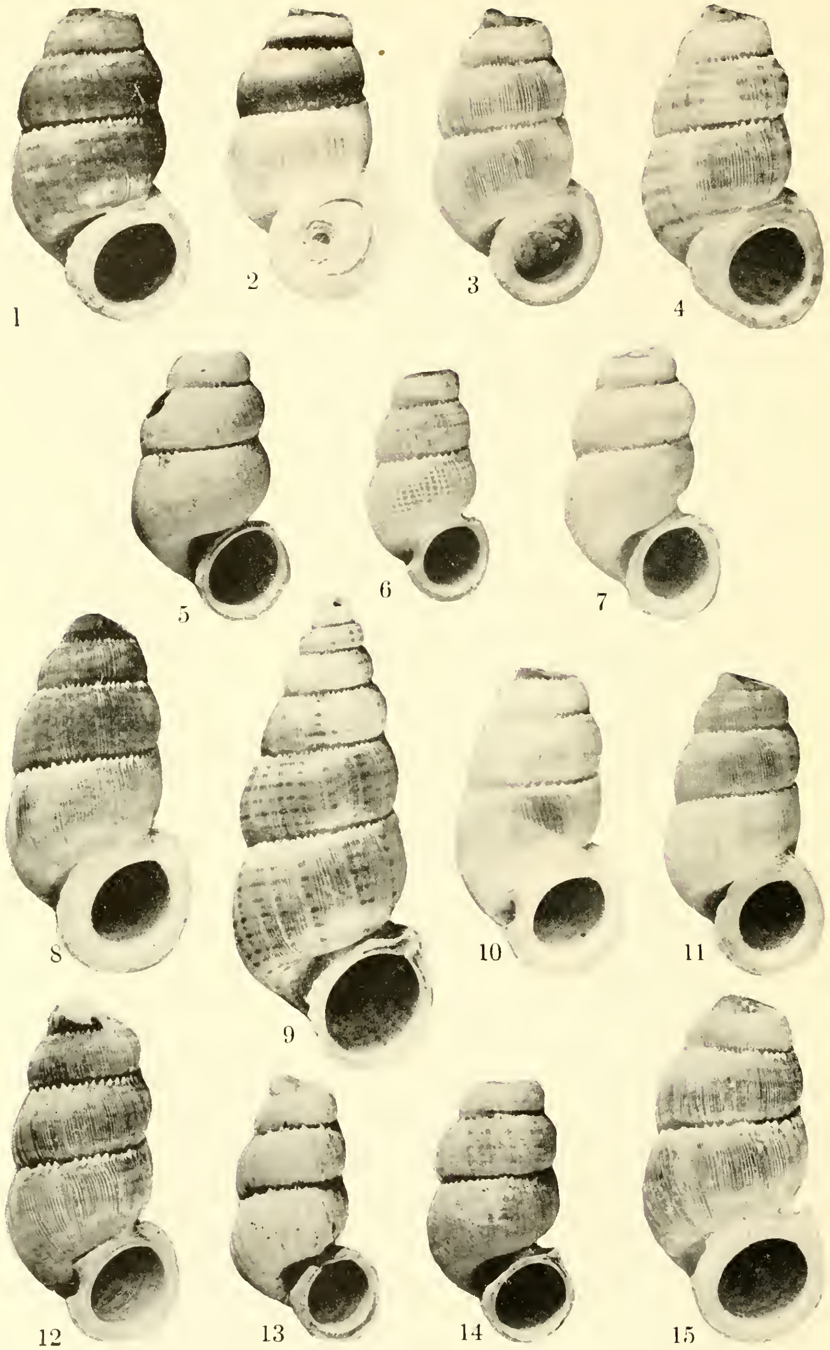
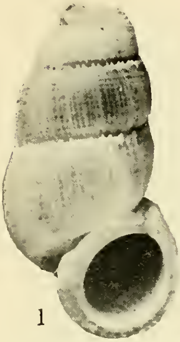
1, *Chondropoma* (*Chondropoma*) *hjalmarsoni gossypinum*, new subspecies; 2, *C.* (*C.*) *h. salinum*, new subspecies; 3, *C.* (*C.*) *h. hjalmarsoni* Pfeiffer; 4, *C.* (*C.*) *inaguense* (Weinland); 5, *C.* (*C.*) *glabratum acklinsense*, new subspecies; 6, *C.* (*C.*) *g. fortunatum*, new subspecies; 7, *C.* (*C.*) *g. glabratum* Reeve; 8, *Opisthosiphon* (*Opisthosiphon*) *androsensis* Pilsbry; 9, *O.* (*Leptopisthosiphon*) *barbouri* Clench.



1, *Opisthosiphon (Opisthosiphona) simpsoni simpsoni,* new subspecies; 2, *O. (O.) maynardi* Vanatta; 3, *O. (O.) simpsoni bryanti,* new subspecies; 4, *O. (O.) s. abacoensis,* new subspecies; 5, *O. (Opisthosiphon) reticulatus pannosus,* new subspecies; 6, *O. (O.) nicholasi,* new species; 7, *O. (O.) reticulatus reticulatus,* new subspecies; 8, *O. (O.) eleutheraensis pallidus,* new subspecies; 9, *O. (Opisthosiphona) acklinsensis,* new species; 10, *O. (Opisthosiphon) alleni alleni,* new subspecies; 11, *O. (Opisthosiphona) simpsoni saccharinus,* new subspecies; 12, *O. (Opisthosiphon) alleni providentialis,* new subspecies; 13, *O. (O.) mayori,* new species; 14, *O. (O.) millsi,* new species; 15, *O. (O.) eleutheraensis eleutheraensis,* new subspecies.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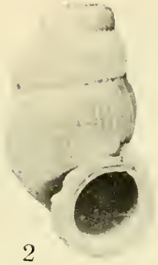
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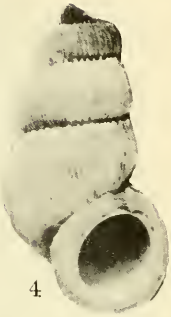
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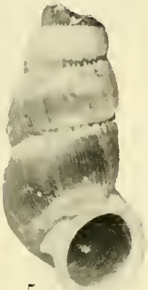
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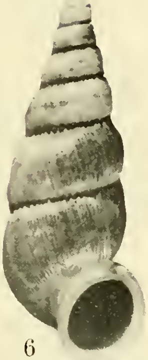
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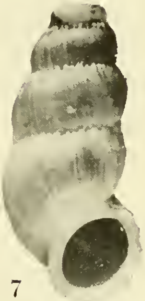
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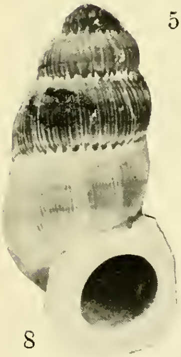
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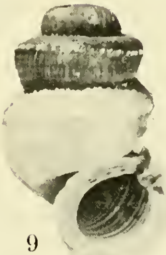
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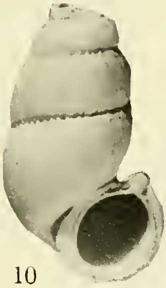
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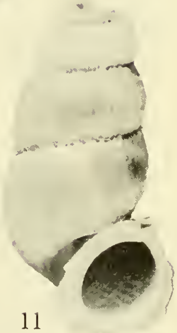
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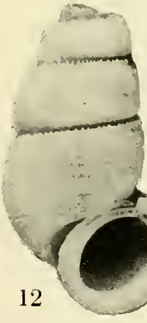
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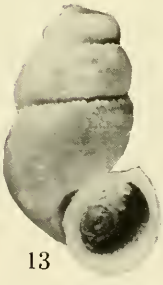
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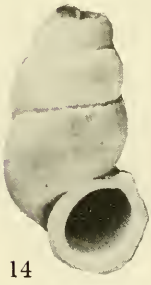
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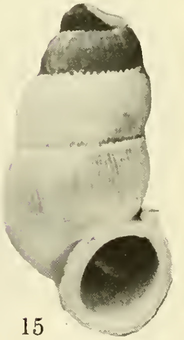
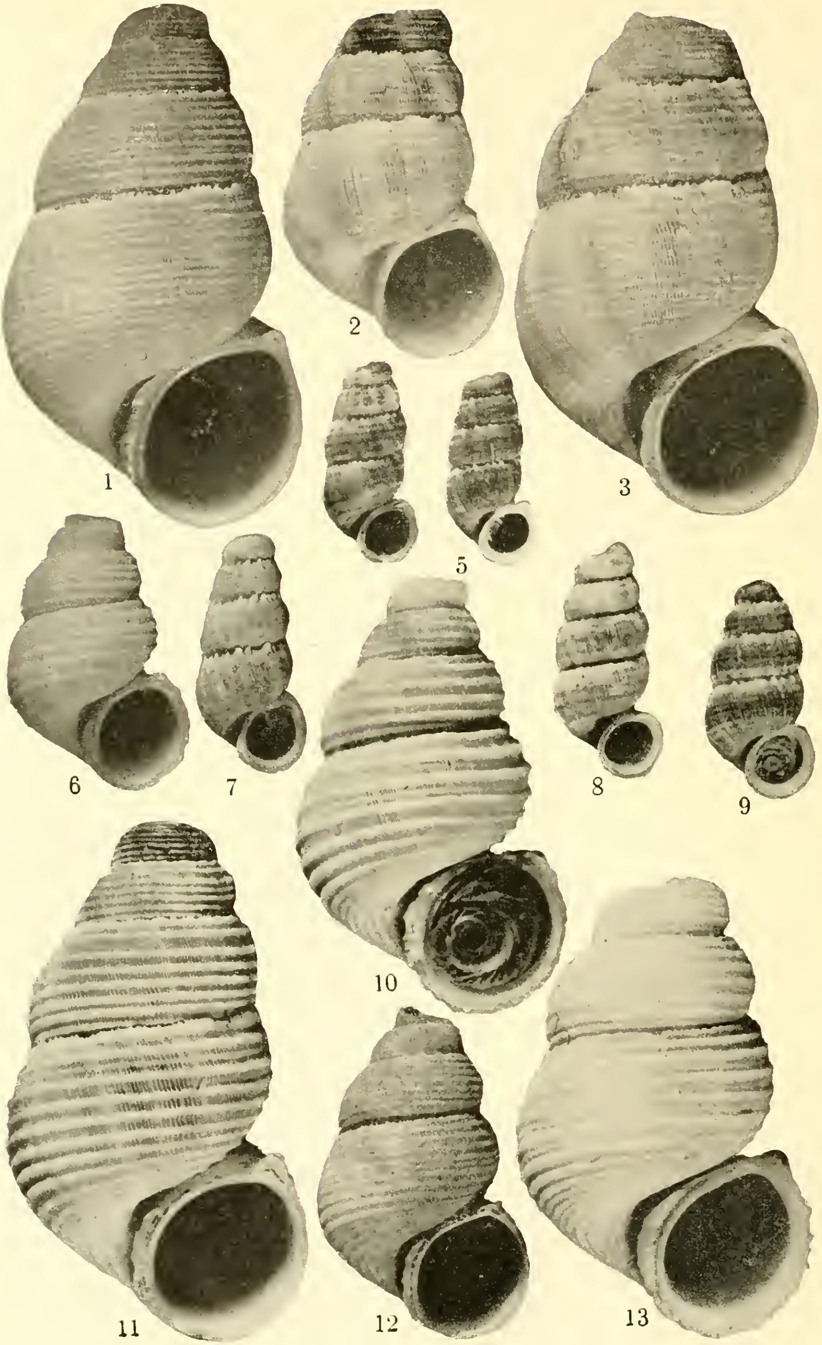

15

1, *Opisthosiphon* (*Opisthosiphon*) *vaughani vaughani*, new subspecies; 2, *O.* (*O.*) *turkensis*, new species; 3, *O.* (*O.*) *vaughani occidentalis*, new subspecies; 4, *O.* (*O.*) *bahamensis abacoellus*, new subspecies; 5, *O.* (*Leptopisthosiphon*) *coloni ferdinandi*, new subspecies; 6, *O.* (*L.*) *c. henryi*, new subspecies; 7, *O.* (*L.*) *c. coloni*, new subspecies; 8, *O.* (*Opisthosiphon*) *bahamensis bahamensis* (Shuttleworth); 9, same (freak); 10, *O.* (*O.*) *phoenicopterus phoenicopterus*, new subspecies; 11, *O.* (*O.*) *bahamensis exumaensis*, new subspecies; 12, *O.* (*O.*) *goldingi masticensis*, new subspecies; 13, *O.* (*O.*) *phoenicopterus nutricius*, new subspecies; 14, *O.* (*O.*) *goldingi goldingi*, new subspecies; 15, *O.* (*O.*) *drewi*, new species.



1-3, *Colonina hydii* (Weinland); 4, *Colonella mariguanensis mariguanensis* (Clench); 5, *C. m. planaensis*, new subspecies; 6, *Colonina bryanti minor*, new subspecies; 7, *Colonella watlingensis watlingensis* (Dall); 8, *C. acklinsensis*, new species; 9, *C. watlingensis henryi*, new subspecies; 10, *Colonina bryanti bryanti* (Pfeiffer); 11, *C. fortunensis*, new species; 12, *C. nana*, new species; 13, *C. inaguella*, new species.

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